STATUS OF COMPUTER PROGRAMS IN THE VA'S DEPARTMENT OF MEDICINE AND SURGERY

HEARING

BEFORE THE

SUBCOMMITTEE ON
HOSPITALS AND HEALTH CARE

OF THE

COMMITTEE ON VETERANS' AFFAIRS
HOUSE OF REPRESENTATIVES

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STATUS OF COMPUTER PROGRAMS IN THE VA'S DEPARTMENT OF MEDICINE AND SURGERY

WEDNESDAY, MARCH 30, 1988

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HOSPITALS AND HEALTH CARE,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:07 a.m., in room 334, Cannon House Office Building, Hon. Charles W. Stenholm presiding.

Present: Representatives Montgomery, Penny, Stenholm, Rowland of Georgia, and Harris.

OPENING STATEMENT OF ACTING CHAIRMAN CHARLES W. STENHOLM, ON BEHALF OF CHAIRMAN G.V. (SONNY) MONTGOMERY

Mr. STENHOLM. The subcommittee will come to order.

I first must announce, unfortunately, that Sonny Montgomery is unable to be with us this morning because of an emergency meeting of the Armed Services Committee. Instead I will be very happy to Chair the meeting this morning.

The purpose of the hearing this morning is to receive testimony concerning the status of the Department of Medicine and Surgery's Decentralized Hospital Computer Program, as well as other Department of Medicine and Surgery computer programs and plans to upgrade or enhance these programs.

This committee has a long history of supporting the DHCP system. I personally believe that the manner in which the employees in the Department have developed, planned and installed the system in 169 of the VA hospitals is just superb. Of course, there have been some minor difficulties which have caused small delays in the program implementation. The most recent delay, which was caused by House Appropriations Committee report language which mandated an Office of Technology study of DHCP and a report prior to allowing the VA to proceed with procurement of much needed hardware, is of concern to us.

We would like to learn of the impact of that delay on DHCP and the quality of health care provided to our veterans. We have the key officials of the VA Central Office here this morning to provide us with this information. We also have several health care staff from various VA hospitals around the country to give us the grassroots view.

We were also pleased to learn that the Department of Defense made the composite health care system award to Science Applica-

tions Internal Corporation. Their system is based on the DHCP system. Now the VA will be able to interface easily with DOD's system, which will be very important in their responsibility as primary backup to DOD in case of war or armed conflict. It is interesting to note that the SAI system is substantially less costly than the other two competitors' proposals.

I look forward to this important hearing and am certain that my colleagues do also.

I might mention for the record at this point that the statement I have just read was that of Chairman Sonny Montgomery.

I would also like to have inserted into the record the statement of the ranking minority member of the subcommittee, John Paul Hammerschmidt.

[See p. 37.]

Mr. STENHOLM. Now, we will call our first panel: David A. Cox, Associate Deputy Administrator for Management, Veterans' Administration, accompanied by John A. Gronvall, Chief Medical Director; and Mr. David Van Hooser, Director, Medical Information Resources Management. Gentlemen, welcome.

STATEMENT OF DAVID A. COX, ASSOCIATE DEPUTY ADMINISTRATOR FOR MANAGEMENT, VETERANS' ADMINISTRATION

Mr. Cox. Thank you. Mr. Chairman, I appreciate the opportunity to appear today on behalf of the Veterans' Administration. If I may, I would just like to summarize my prepared statement, and have it included in the record in full.

Mr. STENHOLM. Without objection, as ordered.

Mr. Cox. During the last two years the Veterans' Administration has made tremendous progress in the area of automated data processing and information resource management. When I arrived two years ago at the Veterans' Administration, we had lost our ability or our authority to procure ADP equipment. We had no centralized or coordinated planning for ADP within the agency. We did not have integration as one of the hallmarks of what we were trying to do. We had a number of major efforts underway that were receiving increasing scrutiny from a number of outside sources, GAO, the Inspector General, and others.

During the last two years, I think the VA has made tremendous progress and strides in this area. We have had our procurement authority fully restored by the General Services Administration to the maximum amount possible.

We have been selected as a lead agency for increased delegations of procurement authority based on our information resource management program.

We have improved the overall management and direction in the Decentralized Hospital Computer Program, and I think that is evidenced by what you indicated before. We have full funding for the program now, and you're going to hear a lot of success about that program today and the way that it is going.

We have implemented agency-wide ADP planning.

We have a senior level systems integration review board which I chair, which consists of the senior leadership in the Department to include the Associate Deputy Chief Medical Director for Programs

and Operations, the Deputy Chief Benefits Director and the Deputy Chief Memorial Affairs Director.

We have strengthened the Department of Veterans' Benefits modernization plan. I think that is now on a course that will enable us to do the things that need to be done in the regional offices to support the activities there.

And we have made major corrections to our plans for the integrated data communications utility which meet all the GAO concerns and put that on solid footing.

These changes have not been made without a lot of effort, and they have been made because of leadership like Dr. Gronvall and Mr. Van Hooser and others in the Veterans' Administration who have taken responsibility to get things done that needed to be done to improve our service level in all of our facilities.

The top priorities for our computer applications are for those that improve quality of service to the veteran, be it in the medical arena or in the benefits arena. We think the DHCP program is probably the finest example of this sort of commitment in the Federal Government as evidenced by the fact that not only the Veterans' Administration program was found to be the most economical amongst all commercial alternatives, but it was reinforced by the Defense Department and the Indian Health Affairs.

So, we think we have a very good track record at VA and we are very proud of it.

I think the thing that I would like to stress the most is that we are providing effective ADP technology to our field stations now. We have plans to increase that technology. We have increased our capital investment commitment to the ADP community by almost 300 percent over the last two years with the support of this committee and the help of others.

We need to continue the program direction. We need to continue the technical leadership that we have now and the executive involvement from the top members of the departmental staff and staff offices. If we do this, I think we can continue to be successful in the future as we have been over the last few years.

I thank you very much for giving me the opportunity to be here today, and I would answer any questions that you might have.

[The prepared statement of Mr. Cox appears on p. 41.]

Mr. STENHOLM. We will hear next from Dr. Gronvall, and then we will entertain questions. Dr. Gronvall?

STATEMENT OF JOHN A. GRONVALL, M.D., CHIEF MEDICAL DIRECTOR, VETERANS' ADMINISTRATION; ACCOMPANIED BY DAVID VAN HOOSER, DIRECTOR, MEDICAL INFORMATION RESOURCES MANAGEMENT

Dr. GRONVALL. Thank you very much, Mr. Chairman. It is a very great pleasure to be here today. As did Mr. Cox, I have a detailed opening statement, and we would request that both of those statements be incorporated in the hearing record.

Mr. STENHOLM. Without objection, your entire statement, along with yours, Mr. Cox, will be made a part of the record.

Dr. GRONVALL. Thank you very much. I will make a very brief opening summary statement, and then we look forward to questions.

As your own opening statement took note, there were limitations placed on our Decentralized Hospital Computer Program. But the reason we are so pleased to be here is that there is real progress that has been made, and so it is a pleasure to report on that progress.

We have now already fully met the requirements of the 1988 Appropriations Act. We have submitted the reports that were called for, and we are moving very aggressively to complete action on the current purchase of equipment and to implement the clinical modules that will be supported this year, which will lead to our hospitals having a totally unified and integrated patient data base. We expect additional equipment deliveries to begin before the end of this fiscal year. And as a result, we will have in operation not only our basic CORE system but the radiology, dietetics, medical record tracking, and the so-called integrated funds control and procurement system that we have been working to develop.

In your opening statement, Mr. Chairman, you also took note of the recent contract award by the Department of Defense for their computer system. I wanted to comment on that myself because it is a very important development that the DOD hospital computer system will be installed by a vendor using software which is based on the VA's software development. All of the software developed by the VA has been put into the public domain, and the fact that the Department of Defense has now received an extraordinarily favorable bid on this basis reflects the fact that the taxpayers are receiving a double or an additional benefit as a result of the software development that was funded through the VA, put in the public domain and was the basis of an extremely successful bid on the DOD contract.

Further, I think it is worth noting that the proposal of SAIC, the successful bidder, was not only low in terms of cost, but was by far the most desirable proposal in terms of the quality of the system that could be put in place.

We have already met with Dr. Mayer, the Assistant Secretary of Defense for Health Affairs, and have additional meetings scheduled directly with him and his key staff so that we will take advantage of every possible working interface between the DOD hospitals and the VA hospitals which will be facilitated by this development.

Again, during the past year our DHCP system has been under intense scrutiny as it has been studied not only by private sector contractors, but by the Office of Technology Assessment. That kind of scrutiny often is a difficult situation to be in, but I think our judgment is that our program and our system are stronger than they have ever been, and perhaps the scrutiny has even contributed to that.

We are continuing with the detailed planning that will be necessary to add two additional integrated hospital system, or IHS, sites as directed in the conference report on the 1988 appropriation. And we are working to accomplish an improved order entry and results reporting system. That is our number one DHCP priority at the present time.

Finally, although there have been delays, I believe that the course of development for the coming year and years is a very clear one. The resolve of the Department of Medicine and Surgery to continue this effort and be successful is unabated. And one of the very key reasons for our success has been the dedicated contribution of many of the people in our medical centers, and I congratulate you and the committee for the wisdom of inviting a number of people from our actual medical center operations to be here and testify today.

Whenever I visit one of our medical centers, one of the most remarkable things that I find is that the staff actually working in the medical center and actually taking care of patients views the computer system as their own system. They use it. They own it. They believe in it, support it, and they work with us to help adapt it and improve it. So, I believe that that is a key reason for our success.

In closing, let me again thank you and this committee for the very strong support you have given us over the years in developing this system. We do appreciate that very much. And again, it is a pleasure to be here, and we will be pleased to respond to any questions.

Thank you.

[The prepared statement of Dr. Gronvall appears on p. 53.]

Mr. STENHOLM. Thank you, Dr. Gronvall.

Dr. Rowland?

Dr. ROWLAND of Georgia. Thank you, Mr. Chairman. I want to thank Sonny Montgomery for holding the hearings on what I consider to be a very important subject and, of course, for his unwavering support of the Decentralized Hospital Computer Program.

As was pointed out, we did have some problems with the Appropriations Committee last year in regard to DHCP. It seemed they wanted to change horses in the stream even after we had gotten more than halfway across the stream. And we are talking about some relatively expensive horses there. But everything seems to be working pretty well on line right now, and I am very pleased with that.

I think the workings of this computer system within the VA is not something that may draw as much attention as some other issues relative to veterans do. But in terms of efficiency and quality of health care, I think it is extremely important. I recall last year in some of the hearings that we had that we heard from many different physicians about how it helped to improve the quality of care. It seemed that almost there was going to be a revolt if this system was replaced by another system. So, I was very pleased with that.

Let me ask you in that respect, did Price Waterhouse find improvements in patient care resulting from DHCP?

Dr. GRONVALL. Mr. Van Hooser is probably in the best position to give a detailed comment on that. The general answer is yes but, Mr. Van Hooser, if you could amplify this please.

Mr. VAN HOOSER. Yes. Price Waterhouse noted a number of cost beneficial areas as well as areas of improvement in patient care. Certainly one of the areas that OMB and the agency have focused on over the past years are savings in staff time both in the admin-

istrative and clerical area, but as we move into the new CORE plus eight areas, we also hope to provide for a more efficient use of physicians and nursing time as the terminals become more useful and usable by the physicians and nurses on the wards. That is one of the reasons why we are spending a good deal of attention and have made it our number one development priority to improve order entry results reporting. And certainly that was one of the patient care improvement aspects of the Price Waterhouse report.

In other areas, besides those that can have a cost benefit attached to them, certainly there are many areas that are influenced, such as the quality assurance areas, by having a system in place. These certainly have a positive impact on patient care. They may not necessarily be cost beneficial. But certainly it makes the system more worthwhile, once it is implemented, to provide a medical record and other information to care providers and will bring about an improvement in patient care.

Dr. GRONVALL. Dr. Rowland, I might add an anecdote from my own personal experience. It would be hard to document the extent to which this improves patient care, but I have visited our hospitals, talked to physicians taking care of patients who have described for me one of the benefits, for example of our laboratory computer module system.

For example, when a patient is having a very difficult medical problem, laboratory work is done on an emergency basis. In the old days, as soon as the laboratory completed that work, the results would be hand-entered onto a slip of paper. Someone would try to deliver that to the floor. People in the ward would start calling the lab. Someone would have to try to go and try to find the slip to find out what the value was.

With the laboratory computer module in place and operation, the very instant the report is done, it is entered into the computer and that result is instantaneously available directly to the doctor right on the ward where the patient is hospitalized.

Now, I can't say how much better that makes patient care. But I know from personal experience, and I've seen it firsthand, that when a doctor has the information virtually instantaneously right at his or her fingertips, the care of the patient is certainly better.

Dr. ROWLAND of Georgia. I can certainly relate to that, and I recall very well running around the hospital myself trying to find lab work on a patient who was critically ill and couldn't locate it at times. So, obviously, it does do a great deal in my opinion to improve patient care.

Let me ask you this. I relate the private sector a whole lot to the VA because I think what happens in the private sector influences the VA and vice versa. Can you tell me how the Price Waterhouse study compared with studies in cost benefits and medical automation in the private sector?

I see my time is running out. If you can answer that question, and then we'll come back, Mr. Chairman.

Dr. GRONVALL. Yes, I'd be glad to. I think again Mr. Van Hooser would have the best answer, but a quick comment on the preamble to your question. I totally agree that we in the VA ought to utilize the standards of quality established in the best medical care institutions. Whether it is based on university hospitals, community

hospitals or VA hospitals, we ought to use this as the standard. So, I am totally in agreement that this is what we ought to look at as we try to measure the benefits of any system going on in the VA.

Mr. Van Hooser?

Mr. VAN HOOSER. In the Price Waterhouse study, it was found that the private sector does not generally undertake rigorous cost benefit analysis prior to making a decision to commit to an automation system for a private hospital, although the areas that the private sector is interested in automating are very similar and analogous to those that VA and DHCP are involved in. They really reflect in the private sector side a response to the marketplace, the need to be competitive, both by having adequate information for patient accounts and patient information for physicians, but also to create an environment where professional staff, physicians and nurses, will want to work. In the era of high demands for nurses and shortage of nurses, certainly having an automation system available is an attractive recruitment device as well as useful in other respects.

In addition, third party payments has generated a great deal of interest, and private sector hospitals have generally committed without doing a lot of cost benefit analysis to systems for that reason.

Dr. ROWLAND of Georgia. Thank you, Mr. Chairman. Before the panel is dismissed, I would like to have a couple more questions.

Mr. STENHOLM. We'll come back around.

Mr. Harris?

Mr. HARRIS. Thank you, Mr. Chairman.

Mr. Cox, could you supply my office with your present plans to update the systems in my home State of Alabama?

Mr. COX. Yes, sir.

Mr. HARRIS. And let me ask you this. In talking about our planning process, do you have a strategic planning process for determining how automation should serve the mission and long-range goals of the Department?

Mr. COX. Could you repeat the last part of the question, sir?

Mr. HARRIS. I said do you have a strategic planning process for determining how automation should serve the mission and long-range goals of the Department.

Mr. COX. Yes, sir, we do, and it is coupled with our strategic planning process that we use within the agency whereby the department heads in conjunction with the Administrator are charting out the areas that we need to be pursuing and the strategy we need to take in meeting the business objectives, if you will, of the agency.

Our ADP plan is coupled to support that, and we have annual planning conferences. We have special interest user groups that work on the integration issues that we need to do to achieve those things. And so, we have got a formal process for both proactively planning as well as review to make sure we are accomplishing the plans that we have set forth.

And we publish an annual integrated information systems plan each year which lays that out, and is available not only to Members of the Congress, but also to the vendor community as well so

that people know where we are going so they can be working to support us.

Mr. HARRIS. Do you have plans, or what are the plans in the future for conversion to more work stations in the medical facilities?

Mr. COX. Well, David can give you the exact numbers, but we are going to add a lot of work stations in the medical facilities—I believe in the neighborhood of over 20,000 within the next year.

Dr. GRONVALL. Why don't we let Mr. Van Hooser give some of the numbers on that.

Mr. VAN HOOSER. In the initial CORE procurement for DHCP that began in 1983 and extended through 1986 we achieved an installation of approximately 18,000 work stations throughout the 172 hospitals, actually 169 DHCP hospitals excluding three commercial test sites. In the new system, the additional eight applications that we are adding to CORE currently will be adding about another 29,000 CRT's over the next few years. This will increase, for example, the number of CRT's that are available at the ward work stations to approximately three. We will first go up to two per station, and then three. That will allow then a terminal for the ward clerical staff, as well as one for nurses, and then a separate one for physicians.

Mr. HARRIS. Thank you, Mr. Chairman.

Dr. GRONVALL. Mr. Chairman, if I might add a word about long-range planning. Mr. Harris, I very much appreciate that because I think the issue of strategic planning is crucial. What I really wanted to say is that we have worked in full collaboration from the Department of Medicine and Surgery with the agency level planning that Mr. Cox is responsible for. And although I am a relative newcomer to the VA myself, I think it is very clear that there has never been a time that the agency-wide strategic planning of automation of information handling has been better integrated and linked to our planning within the Department of Medicine and Surgery for our hospitals.

Clearly, our focus is on our hospital system, but it is a fundamental requirement that we be able to communicate with DVB and the regional offices so that we can exchange information about veterans. Mr. Cox and his staff have an overall agency-wide planning responsibility, but we work very smoothly and collaboratively as we focus on hospitals. And then he and his staff ensure that everything we are doing is integrated with DVB, Department of Memorial Affairs and agency plans. That kind of multiple integrated approach to strategic planning is now working much better than it ever has in the past, and I thank him very much for his strong personal support for the plans we have been making in the Department.

Mr. STENHOLM. Mr. Penny?

Mr. PENNY. Thank you, Mr. Chairman.

Dr. Gronvall, I have a few questions dealing with the integrated hospital systems project. Last year the chairman of the HUD and Independent Agencies Appropriations Subcommittee trimmed your medical information and resource office account by $1 million as a way of sending the VA a signal that he wasn't happy with the way

you were evaluating the integrated hospital systems project. What was the total budget for that office?

Mr. Cox. Our original total budget that we had projected for 1988 was $4.4 million. So, the $1 million cut reduced that to $3.4 million in 1988. That is a 23 percent reduction.

Mr. PENNY. And how did you handle that?

Mr. Cox. With very great care and duress, as you can well imagine, because we were already several months into the fiscal year, of course, when that directive was given.

What we did was review every object of expenditure, every plan that we had had proposed for the current year. We had a couple of overriding goals. The 1988 appropriation language actually imposes a higher level of requirement on us for central planning and control of our hospital system. So, we actually faced a dual dilemma about how to make a major budget reduction at the precise, same time we were having to expand our central commitment to planning and to preparing the several reports, which have now been submitted to the Congress.

So, we attempted to protect our staff. The key people in Mr. Van Hooser's office are the primary resource we have for getting this work done. So, we went to extraordinary length to try to protect our staff resources. And we looked for every other item of equipment that would be purchased or installed this year, travel and other costs to make the reduction.

Mr. Van Hooser could give I think just a few of the numbers of what we actually reduced in order to accomplish the million dollar reduction.

Mr. VAN HOOSER. It was necessary for us to cut our capital outlays that we had planned for the year from $800,000 to $81,000, a 90 percent cut, and also a 50 percent cut in the associated software and hardware maintenance from $731,000 to $369,000.

There had been plans to extend the Wang office automation system to additional offices in the DMS Central Office areas. Those plans had to be reduced even though we had purchased some of the basic capability, the computer actually to allow this to happen in fiscal year 1987. Therefore, we are now in the position of having the computer but not being able to buy the terminals to communicate with it.

In other areas, especially in the clinical affairs offices, those offices that help manage the clinical affairs program in the field, we had a very large acquisition of microcomputers, personal computers, planned, and that also had to be terminated after we received notice of this reduction. We will simply have to limp along without those the balance of this year. Certainly we will take every management action we can to minimize the impact, redistribute equipment wherever possible. But it has created a hardship.

Dr. GRONVALL. Again, the only final summary I would make is that the mandate of the Appropriation Act became fairly clear, and so we identified cost reductions while attempting to protect our staff capability which I think we have done quite well.

Mr. PENNY. What are the prospects for this coming year? Are you on better terms now?

Dr. GRONVALL. Well, when you say this coming year—

Mr. PENNY. I'm talking about fiscal year 1989.

Dr. GRONVALL. For fiscal year 1989 the President's budget request would restore half of that funding to our Central Office I believe basically, and as we look forward to the coming year, we will attempt within whatever management flexibility we have within our budget and our operation to try to protect this. It's a key part of our Central Office.

Mr. PENNY. And in terms of presenting to the appropriators, the evidence they are looking for—

What have you done about that?

Dr. GRONVALL. We have had our appropriations hearing review of the 1989 budget, and we discussed this matter with them, responded to a number of written questions. And our focus was to try to describe the planning jobs that need to be done in the Central Office and describe the staff and other kind of support we need, and then they in their good judgment will translate that into an appropriation.

Mr. PENNY. But it seems to me that that cut was applied as a way of prodding the Department in the area of integrated hospital system projects. And so, it looks to me like you are not just dealing with the situation in which you have to make the case for restoring these funds. You have got to make the case for some progress on that integrated system.

How much can you say about that compared to where you were at a year ago?

Dr. GRONVALL. I'll be glad to comment on that. And again, I am in the delicate position on this because the last thing I want to do is get in between this committee and House Appropriations Committee because I know what the result will be of ending up in that position.

In any event, we do have the three IHS sites now in operation at Philadelphia, Big Spring and Saginaw, Michigan. The appropriation mandates that we maintain those on a permanent basis and in addition add two others at two of our large tertiary care hospitals.

When the three original IHS sites were set up, they were set up to be an experiment with the idea that a comparison would be made between DHCP and those three IHS sites. From our perspective—and that is really all I can speak to—we believe that the comparison has been made. It has been made not only by the VA, but by several outside agencies, private contractors and now the Office of Technology Assessment. We believe all of those comparisons show that DHCP meets our needs and is significantly less costly than the IHS approach.

Since the mandate now of the Appropriations Act is that those be made a permanent feature of our computer system, what we have really done since receiving that directive is to rethink the IHS sites, and our current plan is that we will reconceptualize the whole IHS issue. By that I mean, rather than having them set up as an experiment for a comparison purpose, if they are to be a permanent feature of our computer system, our intent would be to deliberately use them as permanent, kind of in-house demonstration sites where commercial computer firms could show us whatever is the best thing available in the commercial market and deliberately structure those so that new things learned out of those five IHS

test sites can be exported directly into our DHCP system throughout the rest of our hospitals.

We believe that in order to do that we will probably have to recompete the contracts for the three existing IHS test sites and end up with new contracts for the three existing sites, plus the two additional sites, and approach them on a quite different basis, as I have described.

Mr. PENNY. Mr. Chairman, I have one other question, but I think my time is running out and I know that Roy is anxious to ask some questions.

Dr. ROWLAND of Georgia. You raised a point, and if you would yield and let me—

Mr. STENHOLM. I'll recognize you, Dr. Rowland, for your five minutes, and we'll keep going.

Dr. ROWLAND of Georgia. Okay.

Mr. STENHOLM. We'll come back to you, Tim.

Dr. ROWLAND of Georgia. Let me just follow up on the point that Mr. Penny has raised.

How much is it going to cost to put in these two additional systems, Dr. Gronvall?

Dr. GRONVALL. Our best projection on that is that it will be about $5.9 million. Again, that is an estimate, of course, and the actual cost will depend on the bids that are made when we put out an RFP and get contracts. But our best judgment is that it will be about $5.9 million.

Dr. ROWLAND of Georgia. Are you going to be given additional money to do that, or where are you going to get the money?

Dr. GRONVALL. No, sir. There was not a specific component in the 1988 appropriation for that. So, it's a mandate in the Appropriations Act that we do it, and we will have to find the funds by absorption within the Department.

Dr. ROWLAND of Georgia. Well, I don't want to put you between a rock and a hard place, and I don't want to ask you this question, but I am going to ask you this question.

Do you want to do that?

Dr. GRONVALL. I have not assumed that my personal feeling about whether I want to do something has a whole lot of relevance to what I'm going to do.

I think clearly, Dr. Rowland, the decision to add two additional IHS sites did not originate in the Department of Medicine and Surgery. It was not a recommendation that we made or would have made. And since it appeared in the mandate of the appropriation, as I said, we have viewed that our job was to make the best of it and plan to implement it in such a way that our total hospital system gets the greatest benefit out of it.

Dr. ROWLAND of Georgia. I'll go to something else, Dr. Gronvall.

You know, you have had the same experience I have had, I'm sure, in having a patient come into the hospital at night and then your having to go find the charts of previous visits or outpatient visits, and a lot of time is wasted in trying to do that.

What are you doing to update and modernize a central patient data system, such as the patient treatment file and the outpatient clinic file? How are you working those two together?

Dr. GRONVALL. Good. I appreciate the question. We are working very intensively on those through a so-called special interest user group which brings together the people actually working in that area to plan for improvements.

Mr. Van Hooser I think can best give the details on those two specific parts of our patient data base.

Mr. VAN HOOSER. The Patient Treatment File and the Outpatient Data File, both of which operate in the Austin data processing center, were designed many years ago in the era of batch processing prior to concepts we now employ in DHCP for on-line inquiry. These are very large files. They are obviously very important statistical files used now for many purposes, including a computation of DRG's and so forth.

We now have plans and have formed a steering committee, a working group, combined of the Office of Information Systems and Telecommunications, as well as DM&S. We are meeting at a very frequent intervals to focus on the redesign of these files. We are going to put them into a relational kind of data base, a state of the art data base, make them on-line with a user friendly manipulation capability so that wherever you are in DM&S, in Central Office or elsewhere, if you have need for access to this data, you will be able to come in through our data communications network and have that access on-line and have the power of a modern data base management system and manipulation language to run statistical inquiries against the data.

This will take a period of a couple of years. We have an intermediate step that we are hoping to achieve in about a year, sometime after next October, and then we will move into another phase refining that and ultimately adding in additional files such as the fee basis file, for example. The idea is to have a comprehensive, one-stop patient data file centrally located in the Austin data center.

Dr. ROWLAND of Georgia. That sounds real good.

Mr. COX. I would just add to that that the other thing we will be able to do is close out that file on a much more frequent basis than we are doing today so we can get current information going into the resourcing model for the medical centers. So, you will have actually current information coming from a cost and inpatient perspective as well.

Dr. ROWLAND of Georgia. Very good.

One other question. What is Price Waterhouse's overall evaluation of the enhanced DHCP?

Dr. GRONVALL. Mr. Van Hooser or Mr. Cox?

Mr. COX. Their overall evaluation—they have taken a look at cost benefit relationships, and they are finalizing that now. The reviews, when they went out and worked in the medical centers, were all very positive relative to the user acceptance, to the effectiveness of the system, and things of that nature.

The specific recommendations obviously won't be finalized until that final report is out but it shows in most cases a positive relationship cost benefit-wise, and where it doesn't, the clinical improvements are such that it is clearly beneficial. And the Chief Medical Director would concur in this I believe. It is clear that the benefits so far outweigh the cost, that it is the type of decision that needs to be pushed forward.

I would add that the Office of Management and Budget has concurred with that assessment as well, and has fully funded and supported the enhanced DHCP effort in spite of the fact that we have heard a lot about the fact that they haven't been supportive of other efforts. They have here and it clearly meets their requirements in that area as well.

Dr. GRONVALL. Dr. Rowland, I guess I could only add a sentence or two to say that this is almost unique in my experience that every one within the VA at the department level, our medical centers, Central Office, within the VA, Administrator's office, the Office of Management and Budget, the Office of Technology Assessment and several outside contractors have all agreed that the DHCP system works, meets our needs, is a success and is cost effective. That may be unparalleled in anybody's experience in implementing complicated government programs.

Let me add one sentence to that which again comes back to what can go on in the individual medical center. I stressed in my opening comment the sense of ownership of our working medical center staff. And I would extend that only very briefly to say that I think one of the most remarkable and positive features of our DHCP system is that when we need to change it, develop something new, alter it because legislation has changed or there is a new requirement, since the software development staff work for the Department of Medicine and Surgery, in a sense all we have to do is turn to Mr. Van Hooser and say go to work and fix that, develop something new, and we can do it immediately.

One of the real problems we have found at our IHS sites, at least in a number of instances, is that when something new needs to be developed, for example, the module to implement the means test, at one of those sites it took us over a year to even get a successful contract amendment negotiated with the outside vendor to get them to develop the software to implement the means test.

By comparison, in our own system, the DHCP system, within two months of the time that the law went into effect, we had a pilot automated system that was installed and operational in our medical centers. The reason for that was simply that all I had to do was turn to Mr. Van Hooser and say go to work and put that on an automated system, and he assigned his staff to do the development work. We didn't have to go through contract amendment negotiations with an outside vendor and go through all of the long and tedious process that that involves.

Dr. ROWLAND of Georgia. Well, the system is working so well. I really have difficulty in understanding why we have to have two more IHS systems. I don't understand that. And I guess I will just leave it there unless some of you have an explanation about that.

Mr. COX. I can't speak to the quantity, but as to the concept of utilizing what is a reality now, which are some IHS sites, we feel strongly that we need to have an understanding of what the future technologies can bring. So, we need a platform to do that. The number is a congressional decision. We will implement the number we are directed to implement. But we do need a platform to explore future technology so we can integrate that into DHCP if it is going to continue to grow and be vibrant. That is an important feature of any system.

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Dr. ROWLAND of Georgia. So, you think that it is appropriate then—these two additional?

Mr. Cox. The number I wouldn't comment to. The fact that we want to test future technologies is most appropriate, and it is something that you need to do or you're going to become stagnant.

Dr. ROWLAND of Georgia. You can't do that in your DHCP.

Mr. Cox. We could do that in a number of different ways. We could do it with the IHS systems that we have. We could do it with two additional IHS systems added on. We can do it with designated DHCP hospitals absent IHS. However, we have been given direction to go with IHS in a five hospital configuration and that is what we will follow.

Dr. ROWLAND of Georgia. Thank you very much. Thank you, Mr. Chairman, for your generosity.

Mr. STENHOLM. Mr. Harris, additional questions?

Mr. HARRIS. No.

Mr. STENHOLM. Mr. Penny?

Mr. PENNY. No further questions.

Mr. STENHOLM. Mr. Cox, on behalf of Chairman Montgomery, I would like to ask you two questions realizing that they are not necessarily within the purview of the DM&S.

I am aware that the fiscal year 1989 budget request did not include any funding for the Department of Veterans' Benefits ADP modernization. Why and what are your plans for this project? What are the plans for the target system upgrade?

Mr. Cox. Good question. Let me answer it in the sequence that you asked.

First of all, why the 1989 budget request did not include funding for modernization is an important question. If you recall, several years ago the Department of Veterans' Benefits was provided with a lot of funds, staff resources, and other things with a mandate to get on with modernization, and they went forward. It became clear after a period of time that the track that they were on needed to be adjusted, needed to be corrected in terms of the technical direction they were taking and the planning steps they were taking to make the improvements in the regional offices. And so, we made those adjustments. We also needed to strengthen the technical staff, and we've done that.

In point of fact, we were not ready to spend the amounts of money that were given to us to spend. And rather than just throw money at a problem, we wanted to clearly understand the problem and have a way to solve it that would be effective. And so, the fiscal year 1989 budget in our judgment reflects the actual readiness state of the Department.

Now, for fiscal year 1990, you would expect and I would expect to see a substantial increase in the request for that, and we would be in a position to obligate that money in the first quarter of fiscal year 1990 because of the planning that is going on today.

The state of the Department of Veterans' Benefits modernization plan today is far superior from where it was a year ago. First of all, we have met all the concerns that the GAO raised, as well as our own internal reviews, but more important than that, we have got a proactive plan in place that take improvements in three areas.

First of all, our top priority is on loan guarantee processing and the improvements that are needed there, and we are going to be ready to go to procurement probably in the summer to upgrade the loan guarantee processing based on pilot tests that we have done. And I think everybody is sensitive to that particular issue here.

Secondly, we have a model stations program which we are implementing using the hardware presently available in a regional office. Under the model station program, we can add applications to the regional office to improve their productivity. Let me give you an example.

In the case of the TARGET terminals that are there today, you will find four people answering the telephone and in the middle of a table, they have got a lazy Susan and one terminal, and whoever gets the phone call spins the terminal around and enters the inquiry into the terminal. The other three people wait. It is very easy for us to add three terminals now so that everybody can have their own terminal and they don't have to wait in line to answer veterans' inquiries that come in over the telephone.

So, things like these are low cost and very operationally effective. And we can get on with them, and we will.

Relative to improving the capacity of the data processing centers, we are doing that on an incremental basis where we need to enhance production capacity to handle the day-to-day requirements. The overall upgrade for TARGET in the full replacement, which was the initial thrust of modernization, would occur in fiscal year 1992 on the current plans. And that would be a major procurement effort in excess of $50 million. And so, we have to do some detailed work in order to be in a position to conduct a procurement of that magnitude.

So, it's a three-phase plan. What makes me much more optimistic today than I would have been before is that these plans are actively working. I've seen the results of the cost benefit work, which is more than just a financial study, but an actual operations study, how these systems will work as we put them out there. We have got the staff in place to do the job on the model stations project, and my office is collaborating with DVB to assist in that in every way possible in terms of pilot sites. And a long-term plan—we've got visible progress now coming in on time for the deliverables that have been promised. So, that's a long answer, but it's a big project and a big system, and I hope it is responsive to what you asked me.

Mr. STENHOLM. The other question, H.R. 3471, the House VA Cabinet Status Bill, would have the official that occupies your position no longer be a career person, but a political appointee. Senate Bill S. 533 would leave the position a career job. What is your opinion of the two bills?

[Laughter.]

Mr. COX. With all deference to the House, sir, I think the important issue here—because there is one other variable—the importance here is the position itself. The NAPA report, which was also provided to the Senate, would split my job into four parts. I think what is most important is that we have shown over the last two years that if you have some technical leadership in this position working with the departments and the commitment of the top executives of the departments, you can get progress in the ADP im-

provements area that everybody said you couldn't at the VA. And we have made ADP improvements and we've done a good job.

So, I think the first requirement is to keep the job intact as the senior information resources official, which is required by the Brooks Paperwork Reduction Act, and to make sure that that particular individual has the technical competence, number one, and number two, enjoys a good working relationship with the leadership of the agency. I think in the case of ADP, where we have a $500 million a year ADP program, you cannot make decisions on capital investments of that nature based on a personal relationship. When you are talking about a high tech area, you have to make those decisions based on sound technical analysis and sound planning and you have to look at returns on investment because we are talking big dollars. And so, this is an important aspect of the job. And you have to be technically correct first, politically astute second.

So, my personal opinion on the job would be to look for those two characteristics. It's a decision of the Congress whether that be career or whether that be political. I can only look at the track record and say the first six years that that job was in existence it was filled without a tremendous concern for the technical regard and we had ourselves in a lot of hot water. The last couple of years I think we made tremendous improvements. If you can capture both in a political arena, terrific. If it takes a careerist to get that done, I would fully support that, and there I have a bias because I'm a career senior executive service member.

Mr. STENHOLM. I'll recognize minority counsel for questions.

Mr. WILSON. Mr. Cox, in your testimony you say that when your $17 million procurement is completed that that replaced equipment will be sent to the smaller hospitals.

Mr. Cox. Yes, sir.

Mr. WILSON. In another place in your testimony you say that all 169 hospitals are already on it. Would you please clarify that?

Mr. Cox. I'm going to ask Dave Van Hooser to provide some additional details on that.

All of our hospitals are covered by the overall automation plan. So, as we bring in the computers in the larger hospitals, we will be moving equipment down to the smaller hospitals. In point of fact, we will be able to accelerate those plans somewhat, but let me ask Mr. Van Hooser to give you some specifics on that.

Mr. VAN HOOSER. In 1983 when we began the DHCP program, we sized the systems that are now installed in the hospitals to run the medical administration, pharmacy and laboratory software. Over the course of time, the special interest user groups added additional functionality to those applications which have taxed the capacity of those originally purchased computers.

In addition, we have had the advent now of the eight additional applications for which we need computer capacity. That was the award that we made recently on the 14th of March. Therefore, the current installed base of equipment is essentially saturated and at its capacity limits. In some cases we think it is over its capacity limits on a site-by-site basis.

In order to be cost effective and utilize that equipment that we purchased in 1983 which has an economic life extending through

about 1992, we wanted to have a plan that would make the most impact on the large facilities where we typically have the most aggravated workload problem by replacing the equipment at all those facilities and then redistributing the current equipment at the larger facilities downward to the smaller ones, thereby giving them all the capacity to do the CORE plus eight applications.

This will take necessarily over two years to accomplish by the time we install the new equipment, de-install the old equipment at a place such as West Los Angeles, and then separate it into its component parts, ship it to the smaller sites in that area. However, our computer workload model considers both the new equipment, as well as the redistributed equipment, and we have great confidence that when we've accomplished this, we will have the capacity to do the original CORE plus the eight additional applications.

Mr. WILSON. Mr. Cox, in your statement you mention that the General Services Administration commented favorably on your system. What is GSA's role?

Mr. Cox. GSA's role is they grant the procurement authority. All procurement authority for ADP rests in the General Services Administration. They delegate that authority to agencies based on their ability to deal with the procurements involved.

They came in and reviewed our information resource management program, and as a result of that review restored to us our full delegation of authority and, in fact, increased it to $10 million on individual transactions initiated by the primary information technology organization, the Office of Information Systems and Telecommunications. Subsequent to that, they initiated a program, and we were selected as one of the four pilot agencies in the Federal Government, whereby we would receive advanced delegation for the procurement authority.

I could go, for example, to the General Services Administration and indicate that I would like to get advanced procurement authority prior to the studies being done, which then I would redelegate to various parts of the agency for major ADP projects. And this would permit us to move on a fast track. And that was done as a result of their review and their assessment of where our IRM program was vis-a-vis others.

So, that is their role. That is what they did relative to it, and they gave us what I would consider to be a full stamp of approval in that regard.

Mr. WILSON. Thank you, Mr. Chairman.

Mr. MONTGOMERY [resumed the Chair]. Thank you, Mr. Wilson.

I want to thank the gentleman from the 17th congressional district of Texas, Mr. Stenholm, for presiding this morning. I had a meeting on the Armed Services Committee and I felt I should be there for a brief time.

I only have one question. I want to thank our witnesses for being here, as well as the members of the subcommittee. Any of the witnesses can handle this question.

What was the impact on the original CORE plus eight procurement schedule caused by the $10 million cut in the fiscal year 1987 appropriation?

Dr. GRONVALL. I think Mr. Van Hooser has the detailed information and can respond, Mr. Chairman.

Mr. VAN HOOSER. We had established a plan for fiscal year 1987, 1988 and 1989 originally for CORE plus eight. That included a $35 million equipment investment in fiscal year 1987, and then followed by additional investments in 1988 and 1989. With the reduction of the funds in fiscal year 1987, though they were converted to two-year money, we had to recalculate the applications that we could afford to buy equipment for in 1987 and 1988. Because we had priced those out fairly specifically, it was necessary, therefore, for us to plan to buy fewer applications with the combined 1987 and 1988 funds. With the funds now requested in the 1989 budget, we hope to continue the process of purchasing equipment for two additional applications. That will then leave one application remaining unfunded for fiscal year 1990.

We are now looking at the costs of the equipment as we now understand it from the March 14 contract award to determine exactly what our fiscal year 1990 funding requirements will be. It is possible that we will need additional funding in fiscal year 1990. The overall impact, of course, is that we are roughly one year behind where we would have been if we had continued with our original fiscal year 1987-1988 plan. That is to say, equipment was originally intended to be installed by that plan this past December of 1987. We now will see equipment being installed in late summer, probably August-September time frame. So, we are just about a year off, and probably overall a year off from the original schedule.

Mr. MONTGOMERY. Well, thank you, Mr. Van Hooser.

You know, we have been in disagreement with the Appropriations Committee on computers and have had our problems. I hope we can work that out and move ahead for the benefit of the veteran. And we have been very proud that you have been able to implement your software that is really done by the people in the hospitals, the professional people and even nonprofessional people. They have added to your software. Is that correct?

Dr. GRONVALL. Absolutely, sir. Just before you came in, I made some comments about that and the fact that the people actually taking care of patients and working in our hospitals own this system, use it and, better yet, can adapt it, improve it and add new features to it, so people working right within the Department are there and available to make improvements. And I have personally seen some of those in actual operation very effectively.

Mr. MONTGOMERY. I know I'm going over some ground that Tim Penny covered, but I think that it is important that now that the Department of Defense has moved ahead and a company took part of the software that you developed and implemented it into a proposal. And as I understand it, it was accepted by OTA, by the Office of Technology Assessment, and it did make sense.

Now, Dr. Gronvall, you and Dr. Mayer have some similarities in the programs. Shouldn't this make better and easier cooperation between the two biggest medical facilities in the country?

Dr. GRONVALL. Absolutely, and that process has already started in a very specific way. I have talked personally several times to Dr. Bud Mayer about this. In fact, on the very day that they let the contract, his office called me to tell me and to emphasize that this would give a compatible computer system in both the Veterans' Administration and the Department of Defense.

Two weeks ago I went to the meeting of the DOD Health Council. That is Dr. Mayer's periodic meeting at which he meets with each of the surgeons general and other staff. Each of the surgeons general was briefed on the contract proposal. I was able to make comments about it because I had reviewed the GAO analysis of the computer purchase that DOD had made. And I had talked to Mr. Van Hooser about it.

Mr. Van Hooser and I are scheduled within the next couple of weeks, to go over to Dr. Mayer's office. We are going to meet with Dr. Mayer and Dr. Mestrovich, his computer staff person and talk in very specific terms about the ways that our two health systems can collaborate. In short, our goal is to be sure that we do collaborate and that every new development that is made in the computer system of the VA can benefit DOD directly and vice versa. Every new development they are able to make can benefit us.

We think that one of the first places we will probably see that is in regard to order entry, an extremely critical part of a computer system in a hospital. The SAIC, the vendor that will be doing the DOD computers has a very well-developed order entry system. We believe it can probably be made available into the VA either directly or in modified state, and that I think will be just the first of many instances where they develop something and we'll be able to use it. We in the VA will develop something new that they will be able to use.

And finally, of course, in regard to the fact that by statute we are a medical backup to the Department of Defense, having computer systems that talk in the same language and are compatible will be enormously beneficial to both of our systems as we further expand our sharing agreements and our backup responsibilities.

Mr. MONTGOMERY. The reason I bring this up is—I know Charlie Stenholm and myself—I know Tim's district almost as well as he does. He takes me up there about every three months in bad weather.

Dr. GRONVALL. Now, Mr. Chairman, that is the city in which I was born, so I don't want anything negative said about it.

[Laughter.]

Mr. MONTGOMERY. But they have some problems. We have problems too in the VA medical, but the military medical really has more problems, I believe, than you do. The retirees—thank God we are all living longer— have to be treated. But there are more dependents now in the military than we have ever had before. So, they have really got some people in their hospitals of the military medical. If we can tie in together some areas.

They are talking about the Army now. The Surgeon General said there is a possibility that nonprescription drugs would not be given to retirees anymore. If they do that in the Army, they will go to the Air Force, and you will hear from them when the retirees don't get these drugs. So, we have really got some headaches.

I read yesterday where they have put up a new computer system in one of the military hospitals that they were really saying was almost impossible. By the time the fellow got through and got his treatment, he could walk right to the pharmacy and his medicines would be ready for him because of the computers. Now, I know you

have as much as 40 minutes to 2 hours' wait. But no question about, computers can speed that up.

Dr. GRONVALL. Absolutely, and we are surely committed, as I said, to working very closely with DOD. And wherever they can solve a problem that we can borrow as a solution or vice versa, we surely want to do that.

The kind of issues that you talked about regarding medical care of military retirees are thorny ones. But it certainly seems to me that the most advantageous solutions will come about by our two medical organizations collaborating and trying to back each other up and extend our efforts rather than competing with each other or falling over each other by not knowing what we are doing. And I think we are on a basis now where we can accomplish that.

Mr. MONTGOMERY. We are not going to solve the problems on the medical of the two groups, but we certainly can help.

Dr. GRONVALL. Yes.

Mr. MONTGOMERY. There is no question about it when you have got the hospitals close by, certainly the service can be improved.

Dr. GRONVALL. Yes, absolutely.

Mr. MONTGOMERY. We have some other questions that we would like to submit to you for the record, Dr. Gronvall. I want to thank you for being here this morning.

Dr. GRONVALL. It's a pleasure to be here, and I would repeat what we said in our opening statements that the support of this committee is every day being directly translated into improved veterans' care through the computer system that we have in operation.

Mr. MONTGOMERY. Thank you.

If Mr. Markowitz and Dr. Curtis would come to the witness stand. You might summarize, and we are very glad to have you today. You may proceed.

STATEMENT OF JACK MARKOWITZ, ACTING DIRECTOR OFFICE OF INFORMATION RESOURCES, INDIAN HEALTH SERVICE; ACCOMPANIED BY CLAYTON CURTIS, M.D., TUCSON OFFICE, INDIAN HEALTH SERVICE

Mr. MARKOWITZ. Thank you, Mr. Chairman.

I am pleased to have the opportunity to supplement the committee's knowledge of the influence of the distributed hospital computer program of the Veterans' Administration, specifically the experience of the Indian Health Service, in making use of this technology to further development of our resource and patient management system.

I would like to express our support of the approach taken by the VA in implementing the medical information systems, and our appreciation for the effort made both by the headquarters and field staff of the VA to assist us in taking advantage of the systems development already carried out. This relationship with the VA goes back some four years and has been recently matured into an interagency agreement.

I have recently joined the Indian Health Service and, therefore, I have brought with me Dr. Clayton Curtis, who has worked more

closely with the Veterans' Administration to give you more details on that relationship. Thank you.

Mr. MONTGOMERY. Thank you.

Dr. Curtis?

Dr. CURTIS. I am Dr. Clayton Curtis, a physician and computer specialist with the ADP System Support Division of the Indian Health Service in Tucson, Arizona. I am pleased to be here today to discuss with you the relationship between the VA DHCP and the ADP systems of the Indian Health Service.

The Indian Health Service is a Federal agency charged with administering the principal health program for American Indians and Alaska Natives. On January 4, 1988, by order of the Secretary of Health and Human Services, the IHS became one of seven agencies of the United States Public Health Service. The goal of the IHS is to raise the health status of American Indian and Alaska Native people to the highest possible level.

It's mission is threefold: One, to provide or assure the availability of high quality, comprehensive and accessible health services; two, to provide increasing opportunities for Indians to manage and operate their own health programs; and three, to serve as a health advocate for Indian people. In fiscal year 1989, the IHS will continue its mission by providing comprehensive health services to over one million Indian and Alaska Native people.

The IHS comprehensive delivery system is composed of two principal components: The clinical services delivery system administered directly by IHS staff operates 45 hospitals, 65 health centers, 6 school health centers and 267 smaller health stations and satellite clinics. In fiscal year 1987, the IHS staffed facilities provided for approximately 3.6 million ambulatory visits and 76,000 discharges.

Programs which are administered by tribes and tribal organizations through contracts with IHS operate 6 hospitals, 70 health centers, 1 school health center and 262 smaller health stations and satellite clinics. In fiscal year 1987, the tribally operated facilities provided for about 850,000 ambulatory visits and 6,000 inpatient discharges.

The second component is the contract health services program. This mode of health care delivery purchases medical care from non-IHS and non-tribal providers. We consider contract health services to be an important and integral part of the comprehensive IHS and tribal health care system. Contract health services represent services either not available in IHS' direct or tribal health care facilities or in locations where no IHS or tribal facility exists. The IHS program has approximately 2,000 contracts with private providers primarily for the delivery of specialty care. In addition, there are 33 urban Indian health projects providing various referral and health services.

I would now like to address the history of sharing activities and use of DHCP by IHS. The communication between VA and IHS on information systems was initiated at the field level in the latter part of 1983 during the development of the first IHS strategic plan for information systems. Site visits and review of the DHCP applications eventually led in April of 1984 to adoption by IHS of MUMPS and the VA File Manager as a standard development en-

vironment and of DHCP applications as a basis for the hospital portions of the IHS resource and patient management system, or RPMS.

Rationale for attempting to reuse portions of DHCP included an inability to locate satisfactory commercial sources for needed information systems, a desire to avoid costly internal development of complex applications, and a deliberate attempt to make use of technology already developed by another Federal agency. Technical consistency of IHS-developed applications with DHCP standards was considered essential to maintaining long-term compatibility with the VA, minimizing maintenance burden, and providing the ability for the VA to eventually run IHS-developed packages as appropriate.

Early IHS efforts to obtain and adapt DHCP software were informally supported by the VA's San Francisco Information Systems Center. Work on formalizing this relationship began in 1985, and culminated in the signing of an interagency agreement covering sharing of information systems technology in late 1986.

The current status of RPMS is it is not running yet throughout IHS. Delays in both procurement and system installation mean that it will be at least the fiscal year 1988 before IHS has its first layer of small systems in place at every facility. However, the IHS currently makes use of the basic DHCP foundation software at more than 100 sites, including hospitals, clinics, administrative centers and development sites.

The VA outpatient pharmacy system is in operation at some 60 sites with full deployment planned.

Admission, discharge and transfer, clinic scheduling, and clinic laboratory are nearing the point of distribution. Radiology may eventually be implemented at a small number of the larger IHS hospitals.

Applications such as mental health will probably never be implemented due to differences in organizational models.

An IHS-wide electronic mail system using the Veterans' Administration's Mail Man is in operation, and several significant applications have been developed to run from a COBOL mainframe setting. These include patient registration, the patient care component, dental and nursing systems, contract health services management and time and attendance.

It is important to understand that DHCP applications form only a part, albeit it a significant one, of the IHS RPMS project and that applications of potential interest to VA are under development by IHS.

The VA has been very cooperative and deserves much credit for helping another Federal group make progress even with tight resources. Generally access to VA DHCP technology has been extremely beneficial to the IHS making possible an information systems program which depends on reuse of applications and development tools already developed by another Federal agency.

Mr. Chairman and members of the committee, I will be pleased to answer any questions you may have on the effectiveness of interagency sharing between the VA and the IHS in the area of information systems technology and issues affecting the future of this effort.

[The prepared statement of Dr. Curtis appears on p. 59.]

Mr. MONTGOMERY. Thank you, Dr. Curtis. We know of your work and what you have done in Indian health care. We want the record to show that we appreciate your being here today and how well you understand health care for Indians and how you are working toward putting the sharing agreement— even though it is not in the law, that it can be workable.

Mr. Stenholm?

Mr. STENHOLM. No questions.

Mr. MONTGOMERY. Dr. Rowland?

Dr. ROWLAND of Georgia. I don't have any questions.

Mr. MONTGOMERY. Tim Penny?

Mr. PENNY. No questions.

Mr. MONTGOMERY. I have a question here.

Talking about sharing, do you think sharing of Indian Health Service and the VA would assist in the sharing of medical ADP data? That's the computer we are talking about.

Dr. CURTIS. Mr. Chairman, I would say that our relationship with the VA has progressed very well in its current mode. To be honest, I am not sure what effect legislation would have on this except to formalize on a longer range basis the same kind of relationship that DOD and the VA now enjoy, and in that respect it might be beneficial.

Mr. MONTGOMERY. Dr. Curtis, give me some specific way that you have shared with the VA. I know you had it in your statement here, but just for the record give us some areas of some part of the country that the sharing agreement is working.

Dr. CURTIS. I would I guess point out that our sharing agreements have been a little different than that, for example, between March Air Force Base and the San Francisco ISC. We really don't have any facility-to-facility sharing agreements for information systems. What we do is to have an overall umbrella structure which allows IHS to import applications. We are treated basically as another site, so to speak. Our entire agency is treated as a site by the San Francisco Information Systems Center. So, we obtain applications software and a small degree of technical support from there.

On the other hand, we are developing applications which we demonstrate to people within the VA to give them the benefit of some of our experience in areas that are of lower priority now to the VA, but may eventually become very important.

Mr. MONTGOMERY. I know this is mainly on computers. Can you give us any examples of any medical care or sharing agreements with the VA?

Dr. CURTIS. Except on a beneficiary basis because some Indians, of course, are veterans and we have a somewhat special relationship that allows on a contract basis Indian patients to be treated in VA facilities. We don't have any more direct sharing agreements than that.

Mr. MONTGOMERY. Like a CT-scanner in one place in the VA and you don't have one, you don't have a bus that would haul those veterans or move those veterans over to another area to be CT-scanned?

Dr. CURTIS. Well, as I mentioned, on our contract health services basis, we do occasionally have Indian patients treated at VA facilities, but very much on a case-by-case fee basis.

Mr. MONTGOMERY. We will give you some questions to you for the record, and we appreciate both of you being here this morning. Thank you very much.

Dr. CURTIS. We'd be happy to respond to those. Thank you very much.

Mr. MONTGOMERY. Finally, we have a panel today. If the panel would come forward, it would be helpful.

They know how to neutralize me. They bring someone from my congressional district in from the inpatient pharmacy of Mississippi. Good to see you again, Terry.

Make any brief comments, and your full statement will be put in the record, however you would like to handle it. The reason why we have called you in is because you are out in the field and dealing with computer work and how it affects patient care. You really, in effect, are under oath and we would like for you to tell us even though your bosses are listening to you. We have got to find out, and whatever you say, nothing is going to happen to you. We need your help, and that is why we have got you here today.

Dr. Holsinger, will you start the testimony for this panel?

STATEMENT OF JAMES W. HOLSINGER, M.D., DIRECTOR, HUNTER HOLMES MC GUIRE VETERANS' ADMINISTRATION MEDICAL CENTER, RICHMOND, VIRGINIA

Dr. HOLSINGER. Thank you, Mr. Chairman. It's a pleasure to be here. I'm the director of the Hunter Holmes McGuire Veterans' Administration Medical Center in Richmond, Virginia, and have held that post for the past seven years now. I have been in the Veterans' Administration for 20 years in my medical career, and I will have to say that the most exciting thing I think that has happened in that 20 years has been the Decentralized Hospital Computer Program.

When we began the construction of the replacement hospital in Richmond in the late 1970's, no computer systems were designed for that hospital. And when we took it over from the contractor in the fall of 1983, we immediately began renovation in order to have a computer suite and be able to begin the installation of the new DHCP system early the following year.

It has been an absolute superb operation for us, and it has a great meaning to us from the point of view of the clinical care of our patients. I think Dr. Rowland mentioned what did that mean to us. I think a clear indication is that our affiliated medical school, the Medical College of Virginia, at a time when we were in a hold pattern on computer equipment purchases provided us with $10,000 to buy terminals in order to place one in each of our resident team rooms throughout the hospital in order that our house staff and students would have direct access to the computer systems, particularly our laboratory data, both the ordering and the receiving of that data back. So, it has had a marked impact on what we have been able to do clinically.

I would like to say that I think one of the most difficult things that has happened to us during the past four years has been the on-again/off-again aspects of some of the funding for the program. It has been I think devastating to the morale of our people to be moving forward very soundly and all of a sudden come to a screeching halt in what we are able to do in the way of purchasing additional equipment and expanding the computer module. So, I would hope that we could somehow strongly urge that we keep a steady course in our funding in the future because it has made for a very difficult time for us intermittently over the past four years.

Our hospital also has been involved with a very fascinating pilot project which has been integrating an off-the-shelf office automation system with our DHCP program. This has been Digital Corporation's ALL-IN-1 system, and we have put it throughout our entire medical service which is a 280-bed service with 13 different sections. It has been a highly successful pilot project, and we are now able to fully integrate that system with our DHCP programs. We can now load information directly from DHCP and work it in the ALL-IN-1 environment, and we can vice versa do the same thing in the other direction. So, it has been a very fascinating program that has demonstrated that we can use off-the-shelf office automation equipment in conjunction with our DHCP system.

We have been involved with that for over two years now in association with our normal office in Washington.

So, with that note, I'll stop and of course, be happy to answer any questions later.

[The prepared statement of Dr. Holsinger appears on p. 64.]

Mr. MONTGOMERY. Dr. Holsinger, thank you very much.

We are concerned too that the authorization and funding go to two different committees. And we are very concerned. And you have got a friend in this committee. We want to keep a steady flow for the computer system. We want to keep the system you have got now. You developed it.

Actually, we have had testimony here that if you let the system go out and you do away with the software, then you come back and make a request—like I know you do some heart transplants in that area—that we would have to go back and pay for that additional software computer literature that we might need. So, we have got a good system, and I certainly don't want to change it.

Dr. HOLSINGER. Well, we are indeed proud of our system. At our hospital it has been superbly run by our information resource management service people, and we have had tremendous acceptance on the part of our people.

I think to go back again to Dr. Rowland's question on the IHS sites, it would be devastating to our hospital, for example, to pull out the DHCP system and replace it with another system at this point in time. We have a tremendous investment of energy and time on the part of our people in order to be able to have a smoothly functioning and operating program and to have to go through some major change and cut over to an entirely new system would set us back years. It would be a very devastating situation.

Mr. MONTGOMERY. We will move on to Dr. Travers.

Just for the record for my colleagues, I was told by staff that in Richmond you do as many heart transplants, bypasses, and so forth as any hospital in the country. Is that correct?

Dr. HOLSINGER. That's correct, Mr. Chairman. We have already accomplished 14 heart transplants this year. We have 19 veterans who are currently on the computer awaiting hearts to be transplanted. We have an additional 3 patients being worked up today in our hospital, and 15 more scheduled to be admitted prior to August 1, and another 15 that we have already been contacted about. Our heart transplant program is the third largest in the United States.

Mr. MONTGOMERY. Dr. Rowland?

Dr. ROWLAND of Georgia. If I could just comment at this point because I think Dr. Holsinger has so clearly outlined the problems that would be encountered with medical personnel in any way in interfering with the DHCP. He has told it exactly the same way we have heard it from so many other medical people. And again, it is just almost beyond me as to why this thing continues to be tinkered with, Mr. Chairman, and I just wanted to make that remark at this point.

Mr. MONTGOMERY. Well, as I say, this is a democracy. It's the hardest system, but it's the best system. I guess that's the only answer I have. I agree with you.

As you heard me say before, I was spending so much time trying to get the DHCP into the military medical, and it came back. They were taking away the vets' computer system that we had been working on. I hope we have slowed it down some. But that would be sadness. I think if we keep talking about it and people such as our witnesses today point it out, that they will leave us a lone.

Dr. Travers?

STATEMENT OF ELEANOR TRAVERS, M.D., DIRECTOR, PATHOLOGY SERVICE, VETERANS' ADMINISTRATION CENTRAL OFFICE, WASHINGTON, D.C.

Dr. TRAVERS. Yes. Good morning, Mr. Chairman. I am pleased and honored that you asked me to come today.

My position is Director of Laboratories for the Veterans' Administration. I am a physician. I have had experience in internal medicine as a medical student intern in the VA system in the Philadelphia VA. I have had another 12 years of experience in the private sector without the benefit of computers, and came back to the Veterans' Administration in 1971.

My current position is in Central Office, but I speak to you today as an extremely concerned physician who worked in VA hospitals at the time when we didn't have any information management. I took care of patients in internal medicine and cardiology and pulmonary medicine with no benefit of having instantaneous laboratory, radiology, or other diagnostic test results. Today in our system we have it. To tear it apart, to try to reconstruct and start all over again would, as Dr. Holsinger said, be devastating to patient care.

A medical treatment entity is really information management. The speed at which we have to turn our patients over in hospitals today depends on how fast our laboratories, our X-ray departments,

our nursing services, nuclear medicine, pharmacy and all of the support services can work together to get that information into a solid piece of cohesive, cumulative report for the physician to look at. There are so many emergencies happening today in terms of fiscal responsibility in hospitals, we have got to reduce the average length of stay.

As one of the original people in Central Office seven years ago who worked on the design of the format of the laboratory software, I am very, very proud to say that we are accomplishing that today. And I urge you and the members of the committee to continue to support us and thank you for your support in the past.

Mr. MONTGOMERY. Thank you very much. Dr. Travers, it is good to see you again too.

We are your friends. I don't know. We've got to get the story out to other committees in the Congress, and we will do all we can to see that the system stays in place. I'm concerned about the continued testing. I don't know why we need to test any more. It just costs the taxpayers a lot of money.

Thank you very much. Dr. Benway?

STATEMENT OF ROBERT BENWAY, M.D., CHIEF OF THE ANESTHESIA SECTION, JAMES A. HALEY VETERANS' MEDICAL CENTER, TAMPA, FLORIDA

Dr. BENWAY. Mr. Chairman and members of the committee, I am honored to be invited to participate in this hearing as a representative of my colleagues in the Veterans' Administration southeast region.

I am currently the Chief of the Anesthesia Section at the James A. Haley Veterans' Hospital in Tampa, Florida. I am also the chairman of the hospital's clinical ADP committee which is a steering group charged with implementation, training and management of automated information processing within the clinical services. Coordination of the clinical support group is another of my duties. This group supports quality assurance, utilization review, infection control, computer training, and DRG and cost management within the hospital services.

Outside of the hospital I have been a member of the DHCP special interest users' group, otherwise known as the surgery SIUG. I am a board certified anesthesiologist with over 30 years of Federal service, and 24 of those years have been with the Veterans' Administration.

Throughout my career there have been many technological advancements, but two stand out within the sphere of my medical practice. One is the introduction of safe halogenated hydrocarbon inhalation anesthetics which eliminated explosive anesthetics from the operating rooms. The benefits of this milestone in terms of patient safety and cost reduction are immeasurable.

I feel the same way about the VA's DHCP program for exactly the same reason. As an anesthesiologist, it is extremely comforting for me to have a terminal at my desk in the pre-op clinic and in the operating room. In these areas the ready availability of up-to-date, accurate, vital information not always available in the chart or by telephone can be translated in terms of cost and patient

safety. For example, we know now with assurance what medication the patient has been given. In anesthesia the knowledge of potential drug interactions can mean the difference between life and death.

In the outpatient clinics we have determined that the average waiting time for beneficiaries has been reduced 45 minutes since the installation of terminals exclusively dedicated to clinicians. The reduction in waiting time is even greater for the patients of those doctors who have a terminal on their desk.

There are two screens that alone generate savings approaching a half a million dollars a year in our hospital. They are the patient inquiry screen, which provides patient demographic and scheduling information, and the pharmacy profile. I know that the patient inquiry screen saves at least four hours of clerk and secretary time in the surgery office each day, not to mention the fact that patients calling in can get help instantly and without callbacks.

Drug utilization reviews have shown practically all duplicate prescriptions have been eliminated especially those originating from the two remote clinics served by our computer system.

The early promise of the DHCP system led me to involvement in the surgery SIUG as a charter member. The Tampa VA was chosen as the development site. The goals were to develop a surgery information system centered around operative procedures. Appropriate information would facilitate patient care in the perioperative environment and would enhance management decisions in the utilization of expensive resources. Data elements were developed from the surgery information, and other data was imported from packages such as lab, MAS, pharmacy and radiology.

Because there was no probability of obtaining additional personnel for data entry, the package was designed so that a majority of the information could be directly entered by the surgery care providers. This concept, which at the time was revolutionary, led to the development of a screen handler to accommodate work patterns in the surgery area. This screen handler was a first in MUMPS programming and DHCP development. Because of the unique features the package has been in the beta testing phase for over 18 months. Currently the package is being tested in operating rooms in Ann Arbor, Atlanta, Chicago-Westside, Pittsburgh, Tampa and West Roxbury.

The SIUG is also looking at several promising commercially available packages as well as several other VA-developed programs. After about four months of evaluation, it was decided to continue on our DHCP course.

The SIUG also worked with outside vendors to develop methodology for integrating their word processing systems with DHCP for the purpose of having operation reports available in the DHCP patient file. This was an exhausting effort even with the universal outstanding cooperation with the vendors. At this point we are proud to say that two outside firms have been able to integrate word processing with the VA surgery system.

Beta testing should be complete by the end of May, and the package will most likely be available to all surgery services by the end of fall.

The VA-wide user acceptance of DHCP is well-known, and our hospital is no exception. All major released applications programs are up and in active use. The hospital main computer configuration of eight DEC 11/44 computers is at maximum efficiency. Apparently, the addition of another 11/44 will actually decrease efficiency. The system has 4.2 gigabytes of on-line disk memory and peripherals include over 400 CRT's, 200 printers, and a port contention device to allow these terminals to compete for available input ports on the computers.

This sounds like an impressive system, and it is. However, when one considers that there are over 2,000 trained users wishing to use the system, it is easy to see the potential for overload. All hospital services are represented among the users with some services, including nursing service, being 100 percent trained. All resident physicians and medical students are trained and have access to patient information as appropriate. Most staff physicians and many attending physicians use the DHCP system.

For the last six months we have been seeing the effects of high user activity. Access to the computer through the port contention process contributes to delay of as much as eight minutes in reaching the sign-on message. During peak hours, between 9:00 and 3:30, response time between computer prompts to the user can exceed five seconds. When required to make multiple responses, the user is frustrated in the desire to get the job done.

This slow response is particularly disadvantages in the pharmacy, laboratory and the operating rooms. Disk memory is being used rapidly. The microbiology module of the lab package alone consumes approximately 40 megabytes a month. The pharmacy service started last week archiving prescriptions written prior to January of 1987. The lab desperately needs to archive, but the program to do that is not yet available. It is no surprise that there is grumbling among users and the managers. It is felt that the major problems are related to the computer system operating beyond its intended capacity.

How does the average clinician react to the fact that things aren't going as well as before? To use an analogy, they all feel that we have come a mile, but have recently fallen back two steps. No one wants to regress, especially when patient care is involved. There is no question, however, that no one wants to go backwards further or even worse, start over. The honeymoon may be over, but everybody is getting the benefits of the fruits of the marriage.

I feel confident in saying this because just last Friday there was a meeting of the clinical ADP committee. I knew I was coming here, so I wanted to make sure I could reflect the concerns of the clinicians. Everybody had a gripe to vent, but all noted that with the forthcoming computer upgrade, we would be heading in the right direction again.

Incidentally, after the meeting was over, Dr. Charlie Long, our Chief of Rehab Medicine, came up to me with a concerned look. He said, "Dr. Benway, we have come down hard on DHCP today. In fact, I think you ought to go to Washington and thank somebody for how far we have come." Mr. Chairman and members of the committee, I think I'm in the right company to do just that.

Thank you.

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[The prepared statement of Dr. Benway appears on p. 71.]

Mr. MONTGOMERY. Well, thank you, Dr. Benway. We accept those thanks.

We are certainly on your side. As I said, it doesn't make sense that you have to take a step backwards when you've gone a mile. And when they held up the funds over in the appropriations committees, then that did affect us. But we will keep pushing ahead. I think Dr. Gronvall, who is still here, and his team—you've got to take them to the mat over there. We just can't lose these monies and computers. They try to cut us every other way, in personnel and other ways. Sometimes we have to depend so much on these computers.

I appreciate your comprehensive statement. You certainly spent some time on it. Thank you.

Ms. Weiss?

STATEMENT OF LINDA WEISS, HEALTH SYSTEMS SPECIALIST, VETERANS' ADMINISTRATION MEDICAL CENTER, ALBANY, NEW YORK

Ms. WEISS. Good morning, gentlemen. My name is Linda Weiss. I'm a health systems specialist at the Albany VA Medical Center. My involvement with DHCP has been as an assistant chief of radiology service, a member of the nuclear medicine SIUG, and a member of the radiology SIUG. Albany VAMC was also the major test site for the radiology package.

Radiology services in the VA medical centers vary greatly from very small to extraordinarily large, and we provide a broad range of high technology services in the application of ionizing radiation in the diagnosis of disease. In many areas we not only treat veterans, but we are also a significant community resource, as well as resource for other Federal agencies, such as the Department of Defense.

We have seen some significant benefits in utilization of the radiology package in the VA medical centers, but particularly those in assisting the diagnosis and treatment of the patient by providing expedient results of the patient examinations. I think any physician here at this table would support the fact that the integrated patient clinical information has been a major benefit in the treatment of our veterans.

We are also faced in radiology services with a personnel crisis where we cannot hire radiologic technologists due to a national shortage of these types of people. Therefore, we must use our people as best we can, and our DHCP package has allowed us to utilize these people in the treatment and diagnosis of patients rather than in the enormous paperwork handling of information about their radiologic examinations.

The cost benefit of the radiology service is quite significant. We are one of the most expensive programs to operate for a hospital. For instance, the Albany VA Medical Center purchases almost a quarter million dollars worth of radiology film a year. Any time we can utilize information to help us control duplicates, thereby controlling cost in terms of repeats by utilizing staff time for patient

repeats, not utilizing extra film, is of enormous cost benefit to the hospital.

We have seen some significant reductions in those areas and feel that this is our greatest impact. The radiology module has had to grow on its own, however. We are not a module that has had dollar funding behind it in terms of hardware, and so at this point we are running the module in over 60 hospitals which have made the commitment to run the radiology package for the benefit of their patient by utilizing resources that had to be directed away from other areas. And we have done this successfully. However, it does impact on the efficiency of the system and the efficiency of the ability of the package to be utilized.

We have successfully implemented this radiology package in a number of different areas. Primarily our ability to communicate with other people over the phone and bringing up the package by not having people go out to the field has saved significant dollars.

I would like to thank you gentlemen.

Mr. MONTGOMERY. Well, thank you very much.

You certainly seem to know and enjoy your area of expertise. What is your background for the record, Ms. Weiss?

Ms. WEISS. I have board certification in radiology, nuclear medicine, and diagnostic ultrasound as a technological person in these areas. I hold a baccalaureate degree in medical imaging sciences and a masters degree in health systems management.

Mr. MONTGOMERY. You certainly are qualified.

What is one reason you stay in the VA system?

Ms. WEISS. I actually think, sir, that as the daughter of a veteran, as a person who has spent 15 years with the Veterans' Administration, there is a significant statement on the bottom of our literature and the front of our agency building. It says: "To care for him who has borne the battle." And that is where my contribution is, sir.

Mr. MONTGOMERY. That's terrific. I wish I could think that quickly on my feet.

[Laughter.]

Mr. MONTGOMERY. Well, thank you, and we will have several questions. But I want to move to Terry Algood from the VA Medical Center in Jackson, Mississippi.

STATEMENT OF TERRY ALGOOD, ASSISTANT CHIEF OF PHARMACY, VETERANS' ADMINISTRATION MEDICAL CENTER, JACKSON, MISSISSIPPI

Mr. ALGOOD. Thank you, sir. Mr. Chairman, members of the committee, thank you for allowing me to be here.

I am the Assistant Chief of Pharmacy at the Jackson VA Medical Center. Our pharmacy filled over 600,000 prescriptions last year and provided inpatient services for 15,000 patients.

We have been involved with DHCP implementation and computerization since December 1982 when we were tied into the VA's computer center in Birmingham over the phone lines. We have been using our own computers since May of 1984. Our involvement has included serving as a test site for all pharmacy programs at some or all stages of development. Because pharmacy was the first

service to come on line at Jackson, we enjoyed a system whose speed was fully acceptable and whose response time was immediate.

Even though we added additional computers, this changed dramatically as the medical administration service, laboratory, dietetics and others came on line. All services have enhanced existing programs and added new ones. And in the process, new and expanded reports have given us all access to information that is more complete and more accurate than every before.

Without DHCP our pharmacy could not manage our current workload with existing staff and space, nor could we do it as accurately. Production options enable us to process prescriptions and orders for intravenous fluids in minutes rather than hours. Additionally, DHCP generates drug cost and use reports that can break down data by drug or by physician or by service or by clinic or by patient. An exceptional feature of DHCP is the file manager, a computer tool that allows us to design our own reports without requiring a programmer.

Unfortunately, our computer hardware has not kept pace with the development and installation of our software. We can add no more CRT's or printers at Jackson because all available ports are taken. Many users share a common port and cannot access the system at the same time. When more than 28 tasks are running on pharmacy's computer, we notice a significant degradation in processing speed and response time. There are peak times on busy days when the printing of outpatient labels virtually stops. This adversely affects patient waiting time, our ability to deliver timely services to our veterans.

It also decreases the efficiency of our personnel. During periods of high use our staff may find themselves sitting, waiting for the computer to catch up with them. This occurs two to three days a week and with increasing frequency. Employee frustration increases because they know how well the system is capable of performing, but they see that actual performance does not always measure up. There are periods each day when our staff need access to a terminal to answer patient inquiries, to check on medication interactions, or process prescriptions and are unable to find one not in use. We have moved staff to evening shifts in order to give them access to equipment and to use the system when response time is faster.

Management at Jackson has elected not to implement certain programs like the radiology package because of lack of equipment. Other clinical reports have not been developed because of the adverse impact that search and print demands would make on the system. Thus, management has denied the full capability to use the data available.

I have referred to the value of our DHCP reports. However, reports that could previously be run in a few hours now take all night to compile and print. Many must wait until the weekend. Because we are very low on computer memory space, archiving and purging routines must be run frequently.

The storage capacity of our system has been severely taxed in the last year. We purge data almost as fast as we add it. Outpatient prescriptions are retained for just over 12 months. Some hos-

pitals have had to reduce active storage time to even less. Our inpatient medication data is retained for only four to six months before purging. Even with this, we have only 5 percent of our storage space left on pharmacy's computer. We can't always furnish practitioners with complete drug histories because only recent medication profiles are quickly available.

While I can speak specifically only about matters at Jackson, I do know that our experience is not unique. In the last 18 months I have participated in the 11 training sessions for other VA's on inpatient pharmacy programs. Many of the participants express problems similar to ours.

We are very pleased with existing programs and are anxious to move forward with additional enhancements. Pharmacy needs to automate inventory, fund control, pharmacokinetics, drug interaction screening,. Our eagerness is tempered by the knowledge that additional programs will place more demands on our already burdened system. We very much want to automate the documentation of medication administration. Because of the scope of such initiatives, there must be equipment capable of handling data entry in the most expeditious way possible. We need to fully avail ourselves of the latest technology, bar codes, hand-held terminals, light pens and screen handlers.

Pharmacy programs have been refined to enable us to manage workloads and generate useful information, but the bottom line is improving the quality of patient care efficiently and economically and demonstrating to ourselves, our veterans, our critics and our accrediting agencies that we are doing just that.

At a recent national pharmacy meeting the president of the newly renamed Joint Commission on Accreditation of Health Care Organizations indicated that the major trend in evaluating quality care in a hospital would be a shift in focus from assessing the provider's capability to determining the demonstrated ability to give high quality care as measured by outcome. Pharmacy DHCP development will be critical as we go forward with both clinical and administrative indicators for the JCAH. Our development program is user-responsive, and our programmers do excellent work. We have the beginnings of a system that is second to none. We will be able to show the demonstrated ability to the JCAH that they require because we will be able to use DHCP capabilities to measure outcome.

But we must have the computer power to drive these at acceptable speeds and the peripheral equipment to give data access to whomever has the need. It is through this use and data analysis that we will be able to build on our strengths and identify and overcome our weaknesses. Congress has given us an excellent start on our DHCP initiatives, and for this we are grateful. The mechanisms are in place to continue development and expansion. However, we badly need the additional terminals, the new technology and the more powerful computers to carry us forward.

Thank you very much.

[The prepared statement of Mr. Algood appears on p. 76.]

Mr. MONTGOMERY. Thank you, Mr. Algood, for that strong statement. Let me maybe make a comment to you.

A couple of years ago I was at the Jackson VA center, and I try to go by every Christmas and visit. And I go by more than that—probably once every three or four months to the VA center in Jackson in my home State. And I was seeing a friend upstairs in the VA hospital. And it was 6 o'clock at night, and I came down and had a little time. I asked the guard what department of medicine is open in the VA hospital. And he said the pharmacy was. I'm not sure whether it was inpatient or outpatient. Are they both together?

Mr. ALGOOD. They are not together, but they are both open 24 hours a day.

Mr. MONTGOMERY. I think this was outpatient.

So, I went down to the outpatient pharmacy. The person there was assistant pharmacist. I am sure she was. And I said I'm Congressman Montgomery. That didn't phase her at all.

[Laughter.]

Mr. MONTGOMERY. Then I said I'm Chairman of the House Veterans' Affairs Committee. You're looking through a glass, and that didn't turn her on that much either.

And finally, I got across to her that I would like to come back and look in the operation. And she hollered back to the pharmacist. She said there's a fellow here from Washington who wants to come in and look around. The fellow did come up, and I did get in.

[Laughter.]

Mr. MONTGOMERY. And they were certainly overcrowded then. I was concerned. I think the waiting time for medicines in the pharmacy was about 45 minutes to an hour.

In the inpatient, you have to get that medicine up there, don't you? The patient could get in serious problems.

Mr. ALGOOD. Certainly. We try to reduce waiting time wherever the need is for medication. For outpatient perhaps it is not as critical as someone who is in intensive care. But delivery of these IV medications and the first doses for other drug orders are essential.

Mr. MONTGOMERY. Does that come up on your computer? How does that work? What type of computer do you need? I mean, what needs to be done?

Mr. ALGOOD. We have all of the facets of inpatient pharmacy and outpatient pharmacy running at Jackson. The needs are to have systems that will drive it faster than it does now. The system is slow at times during peak days on busy times.

Part of what we need to do is enhance our reporting capabilities to use the information that is already there because of data input, to manipulate it to develop reports on physician practice trends, to see where our DRG's and our money is exactly going. It is these reports that we find difficult to run because of the time it takes to get them run.

Mr. MONTGOMERY. You gave us how to correct it. I'm not quite sure I understood exactly. You need to get the information better into the computer. You don't really need a bigger computer.

Mr. ALGOOD. The information is getting into the computer at this point in time in the outpatient pharmacy. It is slow sometimes because of the heavy demand of 2,500 prescriptions a day. Getting it out and manipulating the data in a form that is meaningful for the managers or the chief of staff or his office can be done through—

Mr. MONTGOMERY. Do you need new computers or bigger computers?

Mr. ALGOOD. We need bigger computers that will drive the existing programs faster. Yes, sir.

Mr. MONTGOMERY. Faster seems to be the big problem.

I have a question here for anyone on the panel this morning. Have you experienced a shortage of ADP equipment or other ADP resources which have impacted on your mission of providing health care to veterans? We will just start over and work across and brief answers would help.

Dr. HOLSINGER. Yes, Mr. Chairman, we have. And I have great hope that the contract that has just been let this month, as those replacement computers come on line at our facility, will have a major impact on relieving the problems that we have. This will aid in the speed of the activity. It will also allow us to add many more peripheral devices, which right now we can add no more because we have no more ports to add to.

Dr. TRAVERS. Yes, Mr. Chairman. I have two levels of problems, one at the large tertiary care type of hospital. The problem that was just described is that there is not enough capacity in the memory of the computer to be able to handle the massive amount of data. Therefore, the response time is slow and, indeed, we are not able to store results in laboratories such as the gentleman from Jackson said that he couldn't store his prescriptions.

Now, at the smaller level of VA medical centers, there are not enough terminals on the floor to be able to get the results from the laboratory transferred directly to the physician or the nurse. Therefore, the shortage of terminals prevents the doctors from getting the information back into the system to get the tests delivered more rapidly. And it prevents the ability of the physician to get an instantaneous report. If we had more terminals, more printers on the nurses' stations, and if we could beef up the capacity of the internal memory—that is, expand it into bigger proportions — the turnaround will definitely improve.

Mr. MONTGOMERY. That is an excellent point. Thank you very much.

Dr. BENWAY. Yes, Mr. Chairman. At Tampa we have been unable to bring up the inpatient pharmacy package at all simply because we do not have any more input ports. Currently we have two terminals on every ward. And because of the nature of the input of the pharmacy inpatient module, we need at least another terminal. We could probably get the terminals, but we just don't have anyplace to put them once we get—there is nothing connect them to. The computer is completely full.

Mr. MONTGOMERY. What persons can operate the terminals on the wards? Who has that responsibility?

Dr. BENWAY. Anybody who works there. As I say, most services are 100 percent trained. The physicians can enter their own laboratory requests right now.

Mr. MONTGOMERY. Nurses, LPN's?

Dr. BENWAY. Nurses and ward clerks.

Mr. MONTGOMERY. They can work the computer?

Dr. BENWAY. Yes, sir. Nurses are 100 percent trained—100 percent. All the doctors are too.

Mr. MONTGOMERY. Ms. Weiss?

Ms. WEISS. In radiology services we, of course, are borrowing capacity from other areas because we are an add-on to the original CORE plus four. I think if the Veterans' Administration is guilty of anything in the DHCP program, it is that we underestimated the overwhelming success of the DHCP systems.

I can't think of anybody who has not taken a look at the program and loved the way it has operated in their facility and added to the quality of patient care. And when we restrict these tools to people, we restrict access and quality of care. We need bigger systems, bigger operating systems. We need more terminals, and we particularly need them for radiology.

Mr. ALGOOD. For those of us who are teaching facilities—and many VA's are—it is imperative that the access to the information is given not just to the staff physicians, but to the residents and interns and students who rotate through and may have direct patient contact and direct patient care involved.

Another aspect is quality assurance. Our quality assurance department needs access to those radiology records and to the other programs that haven't come on line because of lack of terminals and lack of computer power to do their searches and do their print reports.

Mr. MONTGOMERY. Well, thank you. You have been an excellent panel. We appreciate very much your coming in today. You certainly know your subjects. It makes us feel good about the people that are running these computers and handling these hospital systems that mean so much to the veteran. Thank you very much.

This is the last panel, and the subcommittee is now adjourned.

[Whereupon, at 11:05 a.m., the subcommittee was adjourned.]

APPENDIX

REMARKS BY

HONORABLE JOHN PAUL HAMMERSCHMIDT

BEFORE THE

SUBCOMMITTEE ON HOSPITALS AND HEALTH CARE

MARCH 30, 1988

9:00 A.M. ROOM 340 CANNON H.O.B.

THANK YOU, MR. CHAIRMAN.

FOR SOME CONSIDERABLE PERIOD OF TIME, OUR COMMITTEE HAS BEEN INVOLVED IN EFFORTS AT THE VETERANS ADMINISTRATION TO ACHIEVE STATE-OF-THE-ART AUTOMATIC DATA PROCESSING IN ITS DEPARTMENT OF MEDICINE AND SURGERY. TODAY WE MEET TO DETERMINE IF THAT GOAL IS BEING REACHED AND IF OUR VETERAN-PATIENTS ARE BENEFITING BY IMPROVED QUALITY OF CARE.

MR. CHAIRMAN, THIS SUBCOMMITTEE UNDER YOUR LEADERSHIP HAS PLAYED A SIGNIFICANT ROLE WITH RESPECT TO VA'S EFFORT TO HAVE A DECENTRALIZED HOSPITAL COMPUTER PROGRAM. YOU RECEIVED MANY LETTERS FROM AROUND THE COUNTRY FROM HOSPITAL DIRECTORS AND OTHER OFFICIALS PRAISING THE DECENTRALIZED EFFORT. YOU PLACED THOSE LETTERS IN THE CONGRESSIONAL RECORD AND I AM SURE THEY HAD A SALUTARY EFFECT ON VA'S RECENT SUCCESS IN AWARDING A $17 MILLION DOLLAR CONTRACT TO PROVIDE ITS LARGER HOSPITALS WITH REPLACEMENT COMPUTER EQUIPMENT. THE EQUIPMENT ALREADY AT THOSE HOSPITALS WILL THEN BE SENT TO SMALLER FACILITIES. THIS MEANS THAT THE ENTIRE VA MEDICAL SYSTEM WILL MATERIALLY BENEFIT.

THE NET RESULT OF THIS AND OTHER ACTIONS PLANNED OR UNDERWAY IS THAT EACH VA MEDICAL CENTER WILL HAVE ENHANCED CAPACITY TO PROVIDE QUALITY CARE AND ALSO INCREASE PRODUCTIVITY IN A COST-EFFECTIVE WAY.

MR. CHAIRMAN, I AM ANXIOUS TO HEAR FROM OUR WITNESES THIS MORNING. THEY INCLUDE THE CENTRAL OFFICE PLANNERS AND MANAGERS AND ALSO THE OFFICIALS IN THE FIELD INSTALLATIONS WHERE THE ACTION REALLY IS.

THANK YOU, MR. CHAIRMAN.

STATEMENT OF DAVID A. COX

ASSOCIATE DEPUTY ADMINISTRATOR FOR MANAGEMENT

VETERANS ADMINISTRATION

BEFORE THE

SUBCOMMITTEE ON HOSPITALS AND HEALTH CARE

HOUSE COMMITTEE ON VETERANS AFFAIRS

MARCH 30, 1988

Mr. Chairman and Members of the Committee, I am pleased to appear today on behalf of the Veterans Administration in response to the request of Mr. Montgomery.

INFORMATION RESOURCES MANAGEMENT

During the last two years the VA has made enormous progress in overcoming the problems that have plagued the VA ADP programs since 1980. During that time the agency has:

- had its ADP procurement authority restored by GSA;
- been selected as a lead agency in a new program which delegates unprecedented ADP authority to civilian agencies;
- improved the management direction in DHCP resulting in full funding by the Congress;
- implemented agency-wide ADP planning;

- established a senior-level Systems Integration Review Board;
- reorganized and strengthened the Department of Veterans Benefits modernization plan; and
- corrected and improved procurement plans for the VA-wide Integrated Data Communications Utility.

To accomplish this, the Veterans Administration (VA) has placed the highest importance on the proper application of ADP and telecommunications resources to implement our nationwide system of benefits and services for veterans and dependents. Our management goal is to integrate technological advances and innovative management techniques into an efficient system that comprehensively supports quality care and benefits. The top priorities for new computer applications are those that can improve the quality of service to the veteran, increase the productivity of VA personnel, and reduce the cost of providing the essential services to veterans. To meet these priorities, VA has installed computer systems in the field stations and medical centers where they can directly improve the daily delivery of service to veterans. Over the past year, we have continued to make significant progress in our use of information technologies to meet these priorities.

As information processing technology has become more economical, the VA has evolved from relying solely on large central computers to decentralizing processing power to the field in order to improve local operations at the point of contact with the veteran. At the present time, the VA employs a full range of computing support that includes large, mid-range and end user operated systems. Our three Data Processing Centers have large mainframe computers that operate central administrative and mission support applications serving the entire VA. Departments and facilities are operating mid-range

computers for mission support applications that serve users at individual locations. End users at VA facilities employ work stations and personal computers to access and manipulate data critical to providing quality service to veterans and to program management.

As a result of this growth of local processing power, each Department and staff office has its own operational data processing systems, which range in complexity from a correspondence tracking system in the Administrator's office to the large and complex Decentralized Hospital Computer Program (DHCP) in the Department of Medicine and Surgery. These operational systems support mission programs that are independent of one another. However, in many cases, the programs are dependent upon information contained in either a different operational system or in one of the centralized systems. I view the VA as a single entity and have instituted several formal structures to strengthen the information resources management in the VA's Departments and staff offices.

In FY 1986, the VA instituted a formal planning and evaluation process resulting in a single agency-wide Information Systems Plan covering the automation plans of each VA element. The Information Systems Plan is the primary document used for planning, budgeting and implementing major automation goals. Through this increased attention to the technological process and enhanced access to high quality information, we expect to achieve productivity gains and additional management improvements.

To support information systems planning and management in the Agency, the Office of Systems Planning, Policy and Acquisition Control was established in December 1986. This Office oversees the Agency's ADP policy, planning and

acquisition process and ensures compliance with approved plans in the development, operation and maintenance of Agency ADP systems.

During FY 1987, we improved the policy and the process for reviewing and approving ADP acquisition requests. VA Departments and staff offices now requesting more than $50,000 worth of automatic data processing equipment or services must include a justification consisting of a requirements analysis, cost-benefit analysis, and plans for installation. The Office of Systems Planning, Policy and Acquisition Control manages the ADP acquisition approval process, determining jointly with the Office of Acquisition and Materiel Management the proper approval and procurement path and resolving any issues within the defined time constraints. Approval time has been significantly reduced in many cases through the implementation of concurrent, rather than serial, review by interested oversight offices. We have developed standards to apply in the review and evaluation of acquisition requests as well as standard time frames for processing the requests. The improved central policy and control in these areas have been recognized by the General Services Administration and the General Accounting Office in recent reports on the VA's management of information resources.

In the past year we have taken a number of other actions to improve the management of our computer systems. I am confident that these actions address other concerns previously raised by the General Accounting Office. Specifically, we have in place ADP procedures that build in quality at the Central Office and demand it from the Departments and staff offices. We now have coordinated strategic planning, comprehensive information resource management, greater rigor in performing cost/benefit analyses, and require validated justification for all ADP procurements. For the Decentralized

Hospital Computer Program (DHCP) system, for example, we have underway a multi-task agreement with the Federal Computer Performance Evaluation and Simulation Center (FEDSIM) to conduct studies on system usage, DHCP user satisfaction at all medical centers, and system capacity planning.

To assist in the planning effort, our first VA-wide Information Systems Planning Conference was held in May 1987. The conference provided a forum for the development of overall policy direction and an opportunity to exchange ideas for improving the long-range information systems planning effort. In addition, groups were formed to discuss five major cross-cutting policy issues. In exploring these issues, each of the groups felt that additional research, discussion and analysis was necessary to resolve the questions raised. It became clear that a formal structure was needed to resolve these Agency issues and other major system development and integration issues.

In July 1987, the Administrator established a formal oversight structure to address this pressing need. This structure consists of three interrelated elements: the VA Systems Integration Review Board, Special Interest User Groups, and a network of Systems Managers for major systems development efforts. The Systems Integration Review Board develops VA system integration goals, reviews progress of major systems efforts, and resolves systems integration issues raised by the responsible Department, staff office, or Special Interest User Group. Three Special Interest User Groups have been created to address information systems-related issues which cross organizational lines. They address systems interconnectivity and interoperability, cost accounting, and data management and administration. Also, system managers have been designated for major Agency information

systems projects. They provide periodic briefings and status reports to the Systems Integration Review Board.

Also in July 1987, the Administrator established the Data Administration Program, which encompasses data sharing, data standardization and accessibility. This Program is responsible for developing the Agency data plan, reducing data redundancy, defining an inventory of VA data, and protecting the integrity of data. The VA currently supports all Government ADP standards and is placing emphasis on standards to facilitate inter-connectivity, vendor independence, and software portability to minimize cost.

DM&S/DHCP/IHS

In the Department of Medicine and Surgery, the major medical automation initiative is the Decentralized Hospital Computer Program (DHCP). This system is designed to give health care providers within the VA medical centers the tools that they need to deliver high quality, cost-effective patient care. All of our medical centers have the basic computer equipment and software to automate crucial work such as clinic scheduling, admissions, pharmacy, and laboratory activities. The initial CORE applications (registration, admissions, scheduling, and outpatient pharmacy) are 100% implemented. Other CORE applications to support laboratory and inpatient pharmacy are also widely implemented. DHCP systems are now operational in 169 VA hospitals and 55 outpatient clinics. For the veteran patient, the automated system translates into less waiting time for appointments and prescriptions. For the doctor who is diagnosing and treating the veteran patient, the automated system now provides faster, more accurate lab information.

On March 14, 1988, the VA awarded a $17.7 million contract to Digital Electronic Corporation to provide the larger VA hospitals with replacement computer equipment to support CORE plus additional software applications. The contract guarantees the quantities of computer equipment to support 31 VA medical centers with provision for additional optional quantities. The VA plans to exercise options to replace equipment at a total of 59 medical centers at a cost of $34 million. As a result of installing new replacement systems at the larger medical centers, the existing computer equipment at those sites will be reallocated to the smaller sites. This additional computer capacity at the smaller sites will be used to support CORE plus additional software applications. A number of other associated procurement activities are underway for the acquisition of related equipment including video display terminals, bar code readers, and printers. We believe that this computer equipment is necessary to provide adequate computing capability at the medical centers.

The eight priority applications, known as Enhanced DHCP, have been cost justified by prospective analysis for installation on the upgraded DHCP system. These modules are: Radiology, Dietetics, Medical Records Tracking, Fiscal and Supply (IFCAP), Decentralized Medical Management System (DMMS), Surgery, Nursing, and Mental Health. All of these modules, except for IFCAP and DMMS, have a clinical service orientation. IFCAP is a joint fiscal and supply product to provide several related functions as its name indicates: Integrated Funds Distribution, Control Point Activity, Accounting and Procurement. The Decentralized Medical Management System under development will draw and integrate data from all other administrative and clinical modules to provide VAMC managers and physicians with management information that is timely to their needs. Use of this information by local managers will

have a significant impact on resource utilization, management, and assuring the quality of patient care.

DM&S has taken positive steps to meet the concerns that have been expressed regarding DHCP by the various oversight agencies and to effect the transition to an operational environment. The reorganization of the Medical Information Resources Management Office and the seven regional Information Systems Centers has strengthened the national direction of DHCP development and implementation. I believe this management structure will assure that all program resources are accountable and focus on the same strategic plan.

Another significant improvement was the design of a new computer sizing model to specify systems which better reflect the automation needs for each of the medical centers. This model was based upon workload as well as other characteristics such as physical descriptions of the health care facilities. In the area of quality control, additional staff to support the DHCP testing and documentation needs have been given to each Information System Center.

Similarly, ADP Security Program staffing has been augmented with the creation of the DM&S National Center for ADP Security located at the Martinsburg VAMC to monitor compliance. Stringent new testing and documentation standards have been developed and will be utilized in DHCP. Procedures have been established providing for program office sign-off on software prior to national release, thereby ensuring that it meets program needs and conforms to national policy. Finally, to monitor more closely the operational environment at each health care facility we have installed a national automated tracking system for software and we are refining hardware reporting procedures.

The Integrated Hospital System (IHS) is a program administered by DM&S involving the acquisition, operation, and evaluation of commercially-available hospital information systems in selected VA medical centers. At Congressional direction, the VA conducted tests of commercially-available medical information systems at three medical centers. These tests were completed in September 1987. Since then, the VA has received a Congressional directive to install two additional commercial systems, and also is considering whether to recompete the three existing IHS systems. The technology used in the expanded IHS test will allow for maximum flexibility by ensuring that innovations and R&D efforts in the private and public sector can be fully utilized in the VA. We are interested in developing innovative information systems technology that will meet the needs of our medical centers through the next decade.

DM&S has begun preparing a functionally-oriented solicitation document that combines the best features of the current IHS applications with those of DHCP, and also provides for examining other information system innovations. A Program Management Office has been established within the Medical Information Resources Management Office to monitor and coordinate these activities. We will ensure that the system specifications include an equitable comparison between the commercial systems (IHS) and the VA-developed systems (DHCP). It is expected to take approximately 4 1/2 months to develop the functional specifications. Planned release of the RFP is scheduled for the end of this fiscal year. Another six months are planned for preparation of the proposals by the vendors and evaluation of the proposals by the VA. We expect to award the contract in March 1989, with system installations to begin within 30-45 days of award.

SYSTEMS INTERCONNECTION AND INTEROPERABILITY

We believe that the interdependence among the VA's ADP systems is vital to improving the quality of service that can be provided to veterans. To strengthen communications throughout the VA on this topic, we held the second annual Information Systems Planning Conference in February 1988. The conference theme "Teamwork: A Strategy for Success" underscored the VA's approach to information systems activities. At this conference 200 key VA staff met to develop strategies for systems interconnectivity and integration and to identify linkages across VA's organizations for systems development efforts.

In the incremental building process of systems interconnection and interoperability, the VA currently uses a nationwide data communication network (VADATS). This is a modern private communications network supporting multiple communications protocols. This network provides connectivity and serves as the vehicle for building totally integrated systems that link centralized data bases with local data bases. The Central Office, regional offices, medical centers, and the data processing centers are all connected to VADATS, which allows information exchange. The current network, VADATS, will be replaced by the Integrated Data Communications Utility (IDCU) during the 1988-89 timeframe. The IDCU concept is built upon the International Standards Organization's model for Open Systems Interconnection. In the future, as the VA systems are fully interconnected, it will become easier for users to access information located on any VA data processing system.

The VA uses many components as a framework for the integration of ADP systems:

- Communications networks, protocol converters, and standards provide a firm foundation.

- Data planning, data administration, and data standards have improved data consistency and make it easier for diverse applications to use the same data.

- Three categories of hardware and software provide the actual ADP processing power. These categories are: 1) work stations, PC's, and end user support that help users meet operational needs; 2) Departmental and facility computer centers using minicomputers that support multiple users at one location or meet a specialized requirement; and 3) Agency data processing centers using mainframe processors that serve users at multiple locations in support of agency-wide requirements.

By integrating the ADP systems within the VA, information will be more easily accessible to all VA users. Individual VA users who previously had access to only one system will be able to utilize the information from many systems and thereby improve service to the veteran. As systems are fully integrated, the costs of serving the veteran will continue to decrease through elimination of data redundancy and duplication of data entry efforts. Moreover, the easy access of information will improve program management and reporting to external organizations.

In summary, the VA has achieved remarkable results during the last two years with even more impressive results anticipated into the 1990s as systems are fully integrated. We have improved our information resource management by implementing: VA-wide information systems planning, a more rigorous ADP acquisition process, and a formal oversight structure. A framework for ADP systems interconnectivity and integration has been established, and a number of significant activities are underway to help us achieve our goals. We recognize that our ADP systems, strategic plans, and long-term capital investments are crucial to the VA's continued progress. I cannot stress enough that we are effectively using ADP technology to better serve the veteran and that it is vital for this progress to continue. By providing continuity in program direction, technical leadership, and executive involvement, we can continue to improve on our successes. I will now be happy to respond to your questions.

STATEMENT OF

JOHN A. GRONVALL, M.D.

CHIEF MEDICAL DIRECTOR

DEPARTMENT OF MEDICINE AND SURGERY

VETERANS ADMINISTRATION

BEFORE THE SUBCOMMITTEE ON HOSPITALS AND HEALTH CARE

COMMITTEE ON VETERANS' AFFAIRS

HOUSE OF REPRESENTATIVES

MARCH 30, 1988

Mr. Chairman and Members of the Subcommittee:

It is a pleasure to appear before the subcommittee to discuss our progress in implementing the Decentralized Hospital Computer Program (DHCP). It is a particular pleasure because real progress has been made!

When I was invited before the committee last year to speak about our experiences with DHCP, I cited the importance of automation in enabling health care providers to meet the rapidly changing requirements of modern, high quality medical care. I also noted the repeated lament of our dedicated field staff that there was not more equipment available to install other DHCP applications. As you know, funding limitations were imposed that have put us behind schedule in getting new equipment out to the hospitals.

The VA has now met the requirements of the 1988 Appropriations Act and we are moving aggressively to implement those clinical modules that will give our health care providers a unified and integrated patient data base. Equipment deliveries are expected to begin before the end of this fiscal year and should be completed in mid 1990 if all goes well. This new equipment will be installed at the larger medical centers, and the existing equipment will then be redistributed to the smaller sites. As a result, we will have in operation CORE plus Radiology, Dietetics, Medical Records Tracking and the Integrated Funds Control and Procurement Package (IFCAP). Funds to add Nursing and the Decentralized Medical Management System (DMMS) have been requested in the FY 89 budget.

I was pleased to learn of the Department of Defense's recent award of their Composite Health Care System (CHCS) contract to the vendor which utilizes software based on VA's own public domain DHCP software. This award is further validation of the work the VA has done. The San Diego based firm of Science Applications International Corporation (SAIC) was selected on March 4, 1988, to develop and install a computerized information system for 167 military hospitals and 587 military medical treatment facilities located around the world. The eight year contract includes site preparation, computer operations staff, equipment and VA originated MUMPS software. The first installation sites will soon begin implementation activities.

Not only was the functionality of the modified DHCP/MUMPS software closer to what was required by DOD, but the cost was much lower than the closest competitors. The software that the DOD contractor developed using DHCP as a basis, is available to the VA under an interagency sharing agreement. This, combined with the fact that we have compatible hardware, is a great opportunity for the VA to harness these commercial innovations at very low cost.

Last year I reported to you on a number of improvements to strengthen the national direction of DHCP development and implementation. The reorganization of the Medical Information Resources Management Office and our seven regional Information Systems Centers (ISCs) is maturing and therefore is assuring that all program resources are focused on the same strategic plan. The computer model developed last year to determine automation needs for the medical centers has become the foundation for acquisition and redistribution planning. The additional resources given to the ISCs to support testing and documentation are being aggressively utilized to ensure that stringent new testing and documentation standards are implemented. The national automated tracking system, installed last year, is producing comprehensive and current status reports on the installation of software at each health care facility.

During the past year the DHCP program has continued to face intense scrutiny. This has at times been a difficult experience, but the program will be stronger for its having taken place. Cost effectiveness studies, first by Booz-Allen and Hamilton and subsequently by Office of Technology Assessment validated the Agency's judgment that replacement of DHCP with a commercial

system at this point in time would cause unacceptable delays in getting needed computing power out to our facilities and would also entail much higher costs. These two studies also emphasized the need for increased attention to strategic planning and system integration. I am happy to say that we have made significant progress in these areas.

DM&S is initiating a planning process which will aid future decisions about Automated Data Processing (ADP) technology and resources. Within the Department a steering committee is being established to represent the key users of medical information. This committee will have direct ties to the Department's overall strategic planning process. We will use a variety of forums to get objective opinions on our approach and to learn about approaches being taken by our other partners in health care. An ADP Advisory Committee is also being established at the Agency level. This committee will consist of technical specialists with expertise in ADP and telecommunications technologies in a variety of Federal and commercial settings. A subcommittee of this body will focus specifically on ADP applications in health care.

The most common and effective method for tracking technology takes place at the grass roots level through our clinician's educational experiences, institutional affiliations and individual professional associations outside the VA. This exposure continues to raise the level of expectation among clinicians concerning the potential of computing to improve health care delivery. These clinicians will participate actively in the planning process just as they do now in the process of developing DHCP software.

The last component of the planning process involves objective testing and evaluation of alternatives. One of the strengths of the DHCP program has been the ability to deliver a product to the field that can be evaluated on the basis of performance in a live hospital environment. Prototyping and piloting will continue to be key elements both in the DM&S approach to developing systems and in evaluating technical options.

The Conference Report on the FY 88 appropriation directed that we designate two additional Integrated Hospital System (IHS) sites and retain the existing three sites for the purpose of an on-going test for tracking changes in technology offered by commercial vendors. The expanded IHS test is intended to prototype innovative technologies, management and contracting strategies. We will be preparing a functionally oriented solicitation that combines the best features of the current IHS applications with those of DHCP and also provides for future examination and installation of information system innovations that are yet to be developed.

OTA and others have commended the VA for its use of special interest user groups (SIUGs) to involve end users directly in the software development process. With the maturity of DHCP has come the realization that there needs to be greater coordination across SIUGs to make better use of the information collected by DHCP automation of key hospital service areas and to channel future development towards common solutions. New strategies for user involvement are emerging that will deal with integration issues and ensure the broadest possible exposure to technological opportunities as well as alternatives offered by the private sector. An interdisciplinary group from various specialty areas has made progress toward the long term objective of

defining the data requirements of an automated medical record. Just as important, they have given us the needed ward level clinician's perspective on changes that need to be made to simplify order entry. Improving order entry/results reporting is the number one DHCP development priority. In June we will demonstrate these improved capabilities at the Washington VA Medical Center test site. Changes have been put in place that will make ordering easier and will simplify training of new users. The internal changes focus the data entry activity on the patient rather than the package, and eliminate distractions and added keystrokes required in dealing with ordering one ancillary service at a time. Our ultimate goal is to make ordering so easy and the payback in information availability so great that providers will want to enter their orders directly in the system.

Despite delays, our course is set and our resolve is strong. I believe that the commitment and enthusiasm of our health care providers is the key reason that we can continue to move ahead. Provision of a full range of automated information support in our medical centers will directly benefit veteran patients by improving the quality of care we give.

Mr. Chairman, this concludes my remarks. I shall be pleased to answer any questions you or members of the Subcommittee may have.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Washington DC 20201

FOR RELEASE ONLY UPON DELIVERY

STATEMENT

BY

CLAYTON CURTIS, M.D.

ADP SYSTEMS SUPPORT DIVISION

INDIAN HEALTH SERVICE

PUBLIC HEALTH SERVICE

BEFORE THE

COMMITTEE ON VETERANS' AFFAIRS

U.S. HOUSE OF REPRESENTATIVES

MARCH 30, 1988

Mr. Chairman and Members of the Committee:

I am Dr. Clayton Curtis, of the ADP Systems Support Division of Indian Health Service (IHS). I am pleased to be here today to discuss with you the relationship between the Veterans' Administration's Distributed Hospital Computer Program (DHCP) and the ADP system of the IHS.

The Indian Health Service (IHS) is the Federal agency charged with administering the principal health program for American Indians and Alaska Natives. On January 4, 1988, by order of the Secretary of Health and Human Services, the IHS became one of seven agencies of the United States Public Health Service. The goal of the IHS is to raise the health status of American Indian and Alaska Native people to the highest possible level. Its mission is threefold: 1) to provide or assure the availability of high quality, comprehensive, and accessible health services; 2) to provide increasing opportunities for Indians to manage and operate their own health programs; and 3) to serve as a health advocate for Indian people. In FY 1989, the IHS will continue its mission by providing comprehensive health services to over one million Indian and Alaska Native people.

The IHS comprehensive delivery system is composed of two principal components. The clinical services delivery system, administered directly by IHS staff, operates 45 hospitals, 65 health centers, 6 school health centers, and 267 smaller health stations and satellite clinics. In FY 1987, the IHS staffed facilities provided for approximately 3.6 million ambulatory visits and 76,000 discharges.

Programs which are administered by tribes and tribal organizations through contracts with the IHS, operate 6 hospitals, 70 health centers, 1 school health center and 262 smaller health stations and satellite clinics. In FY 1987 the tribally operated facilities provided for about 858,000 ambulatory visits and 6,000 inpatient discharges.

The second component is the contract health services program. This mode of health care delivery purchases medical care from non-IHS and non-tribal providers. We consider contract health services to be an important and integral part of the comprehensive IHS and tribal health care system. Contract health services represent services either not available in IHS's direct or tribal health care facilities, or in locations where no IHS or tribal facility exist. The IHS program has approximately 2,000 contracts with private providers primarily for the delivery of specialty care. In addition, there are 33 urban Indian health projects providing various referral and health services.

History of Sharing Activities and Use of DHCP by IHS

Communication between VA and IHS on information systems was initiated at the grassroots level in the latter part of 1983 during the development of the first IHS strategic plan for information systems. Site visits and review of Distributed Hospital Computer Program (DHCP) applications eventually led in April of 1984 to adoption by IHS of MUMPS and the VA File Manager as a standard development environment, and of DHCP applications as a basis for the hospital portions of the IHS Resource and Patient Management System

(RPMS). Rationale for attempting to "reuse" portions of DHCP included inability to locate satisfactory commercial sources for needed information systems, a desire to avoid costly internal development of complex applications, and a deliberate attempt to make use of technology already developed by another Federal agency. Technical consistency of IHS-developed applications with DHCP standards was considered essential to maintaining long-term compatibility with the vA, minimizing maintenance burden, and providing the ability for the VA to eventually run IHS-developed packages as appropriate.

Early IHS efforts to obtain and adapt DHCP software were informally supported by the VA's San Francisco Information Systems Center. Work on formalizing this relationship began in 1985, and culminated in the signing of an interagency agreement covering sharing of information systems technology in late 1986.

Current Status

RPMS is not yet running throughout IHS; delays in both procurement and system installation mean that it will be at least the end of FY 88 before IHS has its first layer of small systems in place in every facility. However, the IHS currently makes use of the basic DHCP foundation software at more than 100 sites, including hospitals, clinics, administrative centers, and development sites. The VA Outpatient Pharmacy system is in operation at some 60 sites, with full deployment planned. Admission/Discharge/ Transfer, Clinic Scheduling, and Clinical Laboratory are nearing the point of distribution. Radiology may eventually be

implemented at a small number of the larger IHS hospitals; Mental Health will probably never be implemented due to differences in organizational models. An IHS-wide electronic mail system using Mail Man is in operation, and several significant applications have been developed to run from a COBOL/mainframe setting. These include Patient Registration, the Patient Care Component (clinical history integration), Dental and Nursing systems, Contract Health Services management; and Time and Attendance.

It is important to understand that DHCP applications form only a part, albeit a significant one, of the IHS RPMS project, and that applications of potential interest to VA are under development by IHS.

VA and IHS technical staff have established a reasonably good working relationship. The VA has been very cooperative, and deserves much credit for helping another Federal group make progress, even with tight resources. Generally, access to vA/DHCP technology has been extremely beneficial to the IHS, making possible an information systems program which depends on reuse of applications and development tools already developed by another Federal agency.

Mr. Chairman and members of the Committee, I will be pleased to answer any questions you may have on the effectiveness of interagency sharing between the Veterans Administration and the IHS in the area of information systems technology and issues affecting the future of this effort.

TESTIMONY OF

JAMES W. HOLSINGER, JR., M.D.

DIRECTOR,

MC GUIRE VETERANS ADMINISTRATION MEDICAL CENTER

RICHMOND, VIRGINIA

BEFORE THE HOUSE OF REPRESENTATIVES

VETERANS AFFAIRS COMMITTEE

MARCH 30, 1988

Mr. Chairman, and members of the Committee:

I appreciate the opportunity to appear before the Committee to discuss my thoughts concerning the Decentralized Hospital Computer program for the Department of Medicine and Surgery. I am privileged to be the Director of the Hunter Holmes McGuire Veterans Administration Medical Center in Richmond, VA. Perhaps a brief history of our facility would be of help for setting the stage for my comments this morning.

In 1976, President Gerald R. Ford signed the appropriation to build a replacement hospital in Richmond. The plans were developed during the late 70s and construction began at a time when there were no automated data processing systems within the medical centers of the Veterans Administration. As a result, the replacement hospital in Richmond was completed without provision having been made for computer capability. In the Fall of 1983, the replacement hospital was accepted by the Veterans

Administration and work began immediately to renovate space to develop a computer suite. As a result of the building of the new hospital, we were able to cancel a million dollar project to install a pneumatic tube system within the facility, and in exchange for this, the hospital received a full core level of hardware. As a result, during the past four years, intensive efforts have taken place at our facility to develop the decentralized hospital computer program.

As a result, the McGuire Veterans Administration Medical Center has been intensively involved in not only the core applications but the core plus 8 applications as they are coming on line. The hospital has served as a beta test site for a variety of modules, including Integrated Funds Distribution, Control Point Activity, Accounting and Procurement System (IFCAP). Today, it would simply be impossible for this facility to function without, as a minimum, the current level of ADP capability. However, we have been seriously damaged in our development of the program at our facility by the on-again, off-again nature of the funding. Three years ago we went through a period of 15 months with no funds available to carry out the ADP plan as submitted and approved, and most recently, we have been significantly hamstrung by inability to obtain replacement CPU's for our system. Our activities of the past year have come to a near halt as our system has become slower and slower due to the inadequacy of our central processing units. The recent award of the contract for replacement equipment is of major importance to our facility and the continued growth and development of our ADP system. We simply can no longer function clinically without the capability provided to us by a modern ADP system that has large enough capacity to handle all the needs of the facility.

In addition, it is also my pleasure today to take this opportunity to share with you our recent experiences in our efforts to establish a unique and effective solution to the problem which I believe is inherent in many of the VA medical centers of the country.

In keeping with the VA's stated goal in our Five Year Information Systems Strategic Plan to integrate technological advances into an efficiency system for providing quality care and benefits, we determined two years ago to design and participate in a study which would enhance the DHCP program by offering a fully integrated office automation system. We felt we had a tremendous opportunity to improve our productivity while, at the same time, improve the quality of the services we provide through the use of office automation. Our hospital had focused on automating the key element of DHCP -- the CORE system, but we had failed to integrate most of our employees into the system. We have taken steps over the past two years to correct this problem and now offer our employees a state-of-the-art office automation system which is fully integrated with the hospital's DHCP system.

Understanding that such a need existed more than two years ago, we initiated an office automation pilot project at the Medical Center in Richmond. I am happy to tell you that the project has been tremendously successful. We now have a fully functional, fully integrated DHCP/Office Automation system throughout the Office of the Director and the Medical Service and are looking forward to expanding this system throughout the hospital in the future. We feel the benefits of a fully functional office automation system, standardized throughout the hospital, are substantial.

Adding the additional benefit of having that system integrated with our DHCP files has given us tremendous flexibility.

The initial phase of the project evaluated the MUMPS-based DHCP office automation software installed in the Nursing Service. That effort involved training users, implementing the prototype, and evaluating user reactions to the products.

The second phase of the study, and the one I would like to focus on today, consisted of an off-the-shelf office automation system utilizing a Digital Equipment Corporation minicomputer-hosted network of workstations. The Digital ALL-IN-1 Integrated Office Information System was analyzed including word processing, electronic mail, electronic calendaring, telephone director, desk calculator, spreadsheet, graphics, data processing and text formatting.

In evaluating the Digital prototype system, we used a detailed user reaction questionnaire which was distributed to staff personnel with the Medical Service after the prototype had been installed and operational for two months. The results of these questionnaires indicated that the users were very satisfied with the Digital prototype, the system was easy to use, and it met all or most of their office automation needs.

Access to the Decentralized Hospital Computer Program system was felt to be imperative to the successful implementation of any office automation system in a VA Medical Center. Recognizing that without this last critical step of the technical implementation we had not yet fully achieved our goal,

Digital Equipment Corporation's support was requested in providing the technical interface to the DHCP system. Since both the CORE DHCP system and our office automation prototype system were Digital products, we felt that they were best suited to develop the interface we needed.

This last phase of ~~our project~~ was successfully implemented in January of this year. Because the DHCP CORE system is based on the application language MUMPS, Digital was able to install Digital Standard MUMPS on our VAX prototype system and via a transparent communication link over ethernet, interact with, process and extract data from the DHCP data base. Now any user on the Digital office automation system can access DHCP and go right into the CORE applications. Likewise, those users on the system who are working on the DHCP system will now see a menu item, "ALL-IN-1", which will take them directly into the ALL-IN-1 office automation system. The user is able to work with the menu he or she is most comfortable with. And, this functionality is transparent to that user. The user does not need to have technical skill to be able to extract valuable data from the DHCP data base.

Users are able to share all resources on the network, including printers. We now have full, functional integration within the Office of the Director and throughout the Medical Service. The true integration of this system is provided by the Digital ethernet communications protocols which, while resident on the DHCP system, actually recognize the VAX office automation system as just another processor on the system.

A key concern throughout this endeavor has been to not only be able to

implement a system which will give appropriate users full access to the DHCP system from their office automation environment but to also provide a system with flexibility to grow and change as the needs of the hospital grow and change. We felt it was important to have a system which would not "Lock" us into an architecture which might be considered obsolete within a few years of its implementation and also to have a system which we could build upon to meet the unique needs of the hospital.

With the ALL-IN-1 Office Automation product, we find that we have been able to start with those applications which are most critical to the operation of the Medical Service and then add capabilities as we need them such as in the Office of the Director. This system functions as the foundation we need to build a powerful yet tailored system. The ALL-IN-1 "umbrella" system gives us the flexibility to add additional software programs as the need arises. This system supports all of Digital's VAX software products AND will support third-party software packages as well as DHCP-developed applications. Software choices running under ALL-IN-1 are not limited to what we think of as the "standard" office automation functions -- word processing, spread sheet, graphics, etc., but rather include communications products, utility programs, data base management systems, and programming languages.

We now have the ability to not only perform all the standard office functions, but to do data processing, bring raw information into the ALL-IN-1 system from DHCP and manipulate that data with very sophisticated software running under ALL-IN-1 -- all from a single terminal.

Since our prototype pilot project has come to a close, we are looking forward to having the opportunity to expand the pilot system throughout the rest of the hospital. Digital provides a broad range of systems and has given us the flexibility of automating all 700 users in the hospital on a single system or taking a more phased, decentralized approach which will allow us to monitor growth, budget, training requirements, software requirements, etc. We are planning to begin Phase 1 of full hospital implementation in the near future with a MicroVAX 3600 which will support 60 users. This system will meet all the needs of all employees in the Director's Office as well as in the Medical Service. We will also be tying in at least one terminal in the Supply, Fiscal and Personnel Service offices. We also will integrate the existing IBM PC's which have been in the hospital for several years.

Because the MicroVAX is a member of Digital's family of computers, all sharing the same operating system and basic architecture, I feel comfortable that we will be able to meet our needs now and in the future.

Thank you, Mr. Chairman, for this opportunity to appear before the Committee.

STATEMENT OF ROBERT E. BENWAY, M.D.

CHIEF, ANESTHESIA SECTION

JAMES A. HALEY VETERANS' HOSPITAL

TAMPA, FLORIDA

MARCH 30, 1988

Mr. Chairman and Members of the Committee, I am honored to be invited to participate in this hearing as a representative of my colleagues in the Veterans Administration's Southeastern Region.

I am currently the Chief of the Anesthesia Section at the James A. Haley Veterans' Hospital in Tampa, Florida. I am also the Chairman of the hospital's Clinical ADP Committee, which is a steering group charged with implementation, training, and management of automated information processing within the clinical services. Coordination of the Clinical Support Group is another of my duties. This Group supports Quality Assurance, Utilization Review, Infection Control, Computer Training, and DRG and Cost Management within the hospital services. Outside the hospital, I have been a member of the DHCP Surgery Special Interest Users Group, otherwise known as the Surgery SIUG. I am a board certified Anesthesiologist with over thirty years of Federal service. Twenty-four of those years have been with the Veterans Administration. ~~Seven years of active duty in the Army led to an ancillary career with the Army Reserve from which I retired as a colonel and as a Combat Support Hospital Commander.~~ I am also on the faculty of the University of South Florida School of Medicine as Associate Professor of Anesthesiology.

Throughout my career, there have been many technological advancements, but two stand out within the sphere of my medical practice. One is the introduction of safe halogenated hydrocarbon inhalation anesthetics which eliminated explosive anesthetics from the operating rooms. The benefits of this milestone in terms of patient safety and cost reduction are immeasurable. I feel the same way about the VA's Decentralized Hospital Computer Program, and for exactly the same reasons. As an anesthesiologist, it is extremely comforting for me to have a terminal at my desk in the Pre-OP clinic, and in the OR. In these areas, the ready availability of up-to-date accurate, vital information, not always available in the chart or by telephone, can be translated in terms of cost and patient safety. For example, we now know, with assurance, what medications the patient has been given. In anesthesia, the knowledge of potential drug interactions can mean the difference between life or death. In the Outpatient Clinics, we have determined that the average waiting time for beneficiaries has been reduced by 45 minutes since the installation of terminals exclusively dedicated to clinicians. The reduction in waiting time is even greater for the patients of those doctors who have a terminal on their desk. There are two screens that alone generate savings approaching a half million dollars in our hospital. They are the Patient Inquiry screen which provides patient demographic and scheduling information, and the Pharmacy Profile. I know that the Patient Inquiry screen saves four hours of clerk time in the Surgery Office each day, not to mention the fact that patients calling in can get help instantly and without call-backs. Drug utilization reviews have shown that practically all duplicate prescriptions have been eliminated, especially those originating from the two remote clinics served by our computer system.

The early promise of the DHCP system led me to involvement in the Surgery SIUG as a charter member. The Tampa VA was chosen as a development site. The goals were to develop a surgery information system centered around operative procedures. Appropriate information would facilitate patient care in the perioperative environment and would enhance management decisions in the utilization of expensive resources. Data elements were developed from surgery information and other data was imported from packages such as Lab, MAS, Pharmacy, and Radiology. Because there was no probability of obtaining additional personnel for data entry, the package was designed so that a majority of the information could be entered directly by the surgery care providers. This concept, which at the time was revolutionary, led to the development of a screen handler to accommodate the work patterns in the surgery area. This screen handler was a first in MUMPS programming and DHCP development. Because of the unique features, the package has been in the beta testing phase for about 18 months. Currently the package is being tested in operating rooms in Ann Arbor, Atlanta, Chicago-Westside, Pittsburgh, Tampa, and West Roxbury. The SIUG also looked at several promising commercially available packages, as well as several other VA deveolped programs. After about four months of evaluation, it was decided to continue on course. The SIUG also worked with outside vendors to develop methodology for integrating their word processing systems with DHCP for the purpose of having Operation Reports available in the DHCP Patient File. This was an exhausting effort, even with the universal outstanding cooperation of the vendors. At this point, we are proud to say that two outside firms have been able to integrate word processing with the VA system. Beta testing should be complete by the end of May, and the package will most likely be available to all Surgery Services by early fall.

The VA-wide user acceptance of DHCP is well known, and our hospital is no exception. All major released applications programs are up and in active use. The hospital main computer configuration of eight DEC 11/44 computers is at maximum efficiency. Apparently, the addition of another 11/44 will actually decrease efficiency. The system has 4.2 gigabytes of on-line disc memory, and peripherals include over 400 CRT's, 200 printers, and a port-contention device to allow those terminals to compete for available input ports on the computers. This sounds like an impressive system, and it is, however, when one considers that there are over 2000 trained users wishing to use the system, it is easy to see the potential for overload. All hospital Services are represented among the users, with some Services, including Nursing Service, being 100% trained. All resident physicians and medical students are trained and have access to patient information as appropriate. Most staff physicians and many attending physicians use the DHCP system.

For the last six months, we have been seeing the effects of high user activity. Access to the computer through the port contention process contributes to delays of as much as eight minutes in reaching the sign-on message. During peak hours between 9:00 and 3:30, response time between computer prompts to the user can exceed five seconds. When required to make multiple responses, the user is frustrated in the desire to get the job done. The slow response time is particularly disadvantageous in the Pharmacy, Laboratory and Operating Rooms. Disc memory is being used rapidly. The Microbiology Module of the Lab Package alone consumes 40 megabytes a month. The Pharmacy Service started last week archiving prescriptions written prior to January, 1987. The Lab desperately needs to archive, but the program to do that is not yet avaialble. It is no surprise that there is grumbling among the users and managers. It is felt that the major problems are related to the computer system operating

beyond its intended capacity.

How does the average clinician react to the fact that things aren't going as well as before? To use an analogy, they all feel that we have come a mile but have recently fallen back two steps. No one wants wants to regress, especially when patient care is involved. There is no question, however, that no one wants to go backwards further, or even worse, start over. The honeymoon may be over, but everybody is benefiting from the fruits of the marriage. I feel confident in saying this, because just last Friday there was a meeting of the Clinical ADP Comittee. I knew I was coming here, so I wanted to make sure that I could reflect the concerns of the clinicians. Everybody had a gripe to vent, but all noted that with the forthcoming computer upgrade, we would be heading in the right direction again. Incidentally, after the meeting was over, Dr. Charles Long, our Chief of Rehab Medicine, came up to me with a concerned look. He said,"Dr. Benway, we have come down on DHCP pretty hard today. In fact, I think you ought to go to Washington and thank somebody for how far we have come." Mr. Chairman and members of the Committee, I think I am in the right company to do just that.

Thank you, very much.

'CONGRESSIONAL HEARING (MARCH 30, 1988) T. ALGOOD' IN MESSAGE FILE:TEXT

I. INTRODUCTION

CONGRESSMEN, I AM TERRY ALGOOD, THE ASSISTANT CHIEF OF PHARMACY AT THE VA MEDICAL CENTER IN JACKSON, MS. OUR MEDICAL CENTER IS A 455-BED ACUTE CARE HOSPITAL WITH AN ADDITIONAL 120-BED NURSING HOME. OUR PRIMARY SERVICE AREA IS ALL OF CENTRAL MISSISSIPPI, AND WE ALSO SERVE AS THE CLINIC OF JURISDICTION FOR THE ENTIRE STATE. IN FY-87 WE TREATED OVER 14,700 INPATIENTS AND 252 IN THE NURSING HOME CARE UNIT. WE LOGGED A RECORD 103,930 OUTPATIENT VISITS AND FILLED OVER 600,000 PRESCRIPTIONS.

II. COMPUTERIZATION AT JACKSON

THE PHARMACY AT JACKSON VAMC HAS BEEN INVOLVED WITH DHCP COMPUTERIZATION SINCE DECEMBER 1982, WHEN WE (ALONG WITH OTHER DISTRICT 10 VA'S) WERE TIED IN TO THE VA'S INFORMATION CENTER IN BIRMINGHAM. WE HAVE BEEN USING OUR STATION'S OWN CENTRAL COMPUTERS SINCE MAY 1984. SINCE THOSE EARLY DAYS, WE HAVE SEEN THE BENEFITS OF SOFTWARE ENHANCEMENTS, ADDITIONAL EQUIPMENT, AND OTHER SERVICES COMING ON LINE. OUR INVOLVEMENT HAS INCLUDED SERVING AS A TEST SITE FOR PHARMACY PROGRAMS FOR SOME OR ALL VERSIONS DEVELOPED. PRESENTLY ALL OF THE LATEST VERSIONS OF PHARMACY SOFTWARE ARE OPERATIONAL AT JACKSON.

BECAUSE PHARMACY WAS THE FIRST SERVICE TO COME ON LINE AT JACKSON, WE ENJOYED A SYSTEM WHOSE SPEED WAS FULLY ACCEPTABLE AND WHOSE RESPONSE TIME WAS INMEDIATE. AS MORE SERVICES DEVELOPED THEIR PROGRAMS AND MORE USERS WERE ADDED TO THE SYSTEM, THIS CHANGED DRAMATICALLY. AS MEDICAL ADMINISTRATION SERVICE, LABORATORY, DIETETICS, ETC., CAME ON LINE, RESPONSE TIME SLOWED. WE ADDED MORE CPU'S (WE NOW HAVE 4), BUT BECAUSE EACH SERVICE NEEDED ACCESS TO THE OTHER'S FILES, PROGRAMS HAD TO BE COPIED ON ALL FOUR COMPUTERS. ALL SERVICES HAVE ENHANCED EXISTING PROGRAMS AND ADDED NEW ONES--AND IN THE PROCESS NEW AND EXPANDED REPORTS HAVE GIVEN US ALL ACCESS TO INFORMATION THAT IS MORE COMPLETE AND MORE ACCURATE THAN EVER BEFORE.

WITHOUT DHCP, OUR PHARMACY COULD NOT MANAGE OUR CURRENT WORKLOAD WITH EXISTING STAFF AND SPACE--NOR COULD WE DO IT AS ACCURATELY. WE HAVE BEEN ABLE TO ABSORB INCREASES IN WORK LOADS WITHOUT SIGNIFICANT ADDITIONS TO OUR PHARMACY STAFF OR WORK SPACE. 'PRODUCTION' FEATURES ENABLE US TO PROCESS PRESCRIPTIONS AND ORDERS FOR INTRAVENOUS FLUIDS IN MINUTES RATHER THAN HOURS. MANUAL FILING, RETRIEVAL, AND TYPING OF PRESCRIPTION AND IV LABELS HAVE BEEN VIRTUALLY ELIMINATED. MANUAL COUNTS AND TOTALS NEEDED FOR DISPENSING RECORDS AND REPORTS HAVE BEEN REPLACED WITH COMPUTERIZED INFORMATION. BUT MORE THAN JUST 'PRODUCTION' OPTIONS, DHCP GENERATES USE AND COST REPORTS FOR PHARMACY THAT ENABLE US TO KNOW EXACTLY WHERE OUR DRUGS ARE GOING AND WHERE OUR MONEY IS BEING SPENT. WE HAVE STANDARD REPORTS THAT GIVE US DRUG USE BY CLINIC OR BY PHYSICIAN OR BY SERVICE OR BY PATIENT OR BY DRUG. AN EXCEPTIONAL FEATURE OF DHCP IS 'FILEMANAGER', A COMPUTER TOOL THAT ALLOWS US TO DESIGN OUR OWN REPORTS WITHOUT REQUIRING A COMPUTER PROGRAMMER TO DO THE WORK.

III. PROBLEMS/DEFICIENCIES

UNFORTUNATELY, OUR COMPUTER HARDWARE HAS NOT KEPT PACE WITH THE DEVELOPMENT AND INSTALLATION OF OUR SOFTWARE. AT JACKSON, WE CAN ADD NO MORE CRT'S AND PRINTERS FOR USERS BECAUSE ALL AVAILABLE PORTS ARE TAKEN. MANY USERS SHARE A COMMON PORT AND CANNOT ACCESS THE SYSTEM AT THE SAME TIME. WHEN MORE THAN 20 TASKS ARE

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RUNNING AT THE SAME TIME ON PHARMACY'S COMPUTER, WE NOTICE A SIGNIFICANT DEGRADATION IN PROCESSING SPEED AND RESPONSE TIME. THERE ARE PEAK TIMES ON BUSY DAYS WHEN THE PRINTING OF OUTPATIENT LABELS VIRTUALLY STOPS. MORE TIME IS ALSO REQUIRED FOR ENTRY OF IV AND UNIT DOSE ORDERS. THIS ADVERSELY AFFECTS PATIENT WAITING TIME AND OUR ABILITY TO DELIVER TIMELY SERVICES TO OUR VETERANS. IT ALSO DECREASES THE EFFICIENCY OF OUR PERSONNEL. DURING PERIODS OF HIGH COMPUTER USE, OUR TECHNICIANS MAY FIND THEMSELVES SITTING, WAITING FOR THE COMPUTER TO CATCH UP WITH THEM AS THEY ENTER PRESCRIPTIONS. AT OTHER TIMES DATA ENTRY CONTINUES, BUT LABELS MAY NOT PRINT FOR 30-45 MINUTES. THIS OCCURS 2-3 DAYS A WEEK, BUT WITH INCREASING FREQUENCY. EMPLOYEE FRUSTRATION INCREASES, AND A SORT OF 'LOVE-HATE' RELATIONSHIP DEVELOPS. MY STAFF WOULD FIGHT TO KEEP THEIR COMPUTER PROGRAMS, BUT THERE ARE TIMES WHEN THEY ARE READY TO TOSS THEM. THEY KNOW HOW WELL OUR SYSTEM IS CAPABLE OF PERFORMING, BUT THEY SEE THAT ACTUAL PERFORMACE DOES NOT ALWAYS MEASURE UP.

THERE ARE PERIODS DURING EACH DAY WHEN PHARMACISTS AND TECHNICIANS NEED ACCESS TO A TERMINAL TO ANSWER PATIENT INQUIRIES, TO CHECK ON MEDICATION INTERACTIONS, OR PROCESS PRESCRIPTIONS AND ARE UNABLE TO FIND ONE NOT IN USE. WE HAVE MOVED STAFF TO EVENING SHIFTS IN ORDER TO GIVE THEM ACCESS TO EQUIPMENT AND TO USE THE SYSTEM WHEN RESPONSE TIME IS FAST BECAUSE OF FEWER USERS THROUGHOUT THE HOSPITAL.

MANAGEMENT AT JACKSON HAS ELECTED NOT TO IMPLEMENT CERTAIN COMPUTERIZED PROGRAMS (LIKE THE RADIOLOGY PACKAGE) BECAUSE OF LACK OF EQUIPMENT. OTHER CLINICAL REPORTS HAVE NOT BEEN DEVELOPED BECAUSE OF THE ADVERSE IMPACT THAT THE SEARCH AND PRINT DEMANDS WOULD MAKE ON THE SYSTEM. THUS MANAGEMENT IS DENIED THE FULL CAPABILITY TO USE THE DATA AVAILABLE.

I HAVE REFERRED TO THE VALUE OF OUR DHCP REPORTS IN PHARMACY. HOWEVER, REPORTS THAT COULD PREVIOUSLY BE RUN IN A FEW HOURS NOW TAKE ALL NIGHT TO COMPILE AND PRINT--MANY MUST WAIT UNTIL THE WEEK-END WHEN SYSTEM DEMANDS ARE LESS. BECAUSE WE ARE VERY LOW ON DISC STORAGE SPACE, ARCHIVING AND PURGING ROUTINES MUST BE RUN FREQUENTLY. THESE, TOO, MUST RUN AFTER NORMAL DUTY HOURS AND ON WEEK-ENDS TO AVOID MORE SLOW-DOWNS DURING THE DAY. THESE PROCESSES SLOW DOWN THE REPORTS WHICH MUST BE RUN AT THE SAME TIME.

THE STORAGE CAPACITY OF OUR SYSTEM HAS BEEN SEVERELY TAXED IN THE LAST YEAR. AS MORE INFORMATION AND PATIENT HISTORY ARE INPUT, WE MUST PURGE DATA ALMOST AS FAST AS WE ADD IT. OUTPATIENT PRESCRIPTIONS ARE RETAINED FOR 12-15 MONTHS IN THE LIVE ACCOUNT. AS THE SIZE OF THE PRESCRIPTION FILE GROWS, SOME HOSPITALS HAVE HAD TO REDUCE ACTIVE STORAGE TIME TO EVEN LESS. INPATIENT MEDICATION DATA IS RETAINED FOR ONLY 4-6 MONTHS BEFORE PURGING. EVEN WITH THIS, WE ONLY HAVE 20,000 BLOCKS OF DISC SPACE REMAINING FOR PHARMACY OUT OF THE 440,000 TOTAL, LEAVING US ONLY ABOUT 5% OF STORAGE SPACE OPEN. WE CANNOT ALWAYS FURNISH PRACTITIONERS WITH COMPLETE DRUG HISTORIES BECAUSE ONLY RECENT MEDICATION PROFILES ARE QUICKLY AVAILABLE.

WHILE I CAN SPEAK SPECIFICALLY ONLY ABOUT PHARMACY MATTERS AT JACKSON, I DO KNOW THAT OUR EXPERIENCE IS NOT UNIQUE. IN THE LAST 18 MONTHS I HAVE PARTICIPATED IN THE ELEVEN SESSIONS FOR THE INPATIENT PHARMACY DHCP TRAINING PROGRAM. ALMOST EVERY VA SENT STUDENTS TO THE TRAINING. MANY OF THEIR EXPERIENCES ARE THE SAME AS JACKSON'S---FULL IMPLEMENTATION OF THE OUTPATIENT PHARMACY PROGRAM, PARTIAL-TO-FULL IMPLEMENTATION OF INPATIENT SOFTWARE,

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INNOVATIVE USES OF FILEMANAGER---AND COMMON FRUSTRATIONS WITH SLOW RESPONSE TIME, LACK OF EQUIPMENT, AND DISC STORAGE SPACE THAT IS FILLING UP.

IV. FUTURE NEEDS

WE ARE VERY PLEASED WITH THE EXISTING PROGRAMS, AND WE ARE ANXIOUS TO MOVE FORWARD WITH ADDITIONAL ENHANCEMENTS. FOR PHARMACY, THERE IS A NEED TO AUTOMATE INVENTORY AND FUND CONTROL, PHARMACOKINETICS, DRUG INTERACTION SCREENING, ETC. OUR EAGERNESS IS TEMPERED BY THE KNOWLEDGE THAT ADDITIONAL PROGRAMS WILL PLACE MORE DEMANDS ON OUR ALREADY BURDENED SYSTEM AND SLOW EXISTING RESPONSE TIME EVEN MORE. PHARMACY AND NURSING AT JACKSON VERY MUCH WANT TO COMPUTERIZE THE DOCUMENTATION OF MEDICATION ADMINISTRATION. BECAUSE OF THE SCOPE OF SUCH INITIATIVES, THERE MUST BE EQUIPMENT CAPABLE OF HANDLING DATA ENTRY IN THE MOST EXPEDITIOUS WAY POSSIBLE. WE NEED TO AVAIL OURSELVES OF THE LATEST TECHNOLOGY IN ORDER TO DO THIS---FOR EXAMPLE, IMPLEMENT OR EXPAND THE USE OF BAR CODE PRINTERS AND READERS, HAND-HELD TERMINALS OR BEDSIDE TERMINALS FOR DATA ENTRY, LIGHT PENS, SCREEN HANDLERS, ETC. OUR PRESENT HARDWARE IS NOT POWERFUL ENOUGH TO DRIVE PROGRAMS REQUIRING SCREEN HANDLERS OR TOUCH SCREEN ENTRY.

PHARMACY PROGRAMS HAVE BEEN DEVELOPED AND REFINED TO GIVE US THE ABILITY TO MANAGE WORK LOADS AND GENERATE USEFUL INFORMATION. BUT THE BOTTOM LINE IS IMPROVING QUALITY OF PATIENT CARE EFFICIENTLY AND ECONOMICALLY---AND DEMONSTRATING TO OURSELVES, OUR VETERANS, OUR CRITICS, AND OUR ACCREDITING AGENCIES THAT WE ARE CAPABLE OF DOING JUST THAT. AT THE DECEMBER MEETING OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, DR. DENNIS O'LEARY, PRESIDENT OF THE NEWLY RENAMED JOINT COMMISSION ON ACCREDITATION OF HEALTH CARE ORGANIZATIONS, GAVE US AN IDEA OF WHAT WE WILL FACE IN THE FUTURE. THE MAJOR TREND IN EVALUATING QUALITY OF CARE WILL BE A SHIFT IN FOCUS FROM ASSESSING THE PROVIDER'S CAPABILITY TO DETERMINING THE DEMONSTRATED ABILITY TO GIVE HIGH QUALITY CARE AS MEASURED BY OUTCOME. WE ARE NOW, AND WILL BE DEALING MORE IN THE FUTURE, WITH BOTH CLINICAL INDICATORS AND ADMINISTRATION OR MANAGEMENT INDICATORS. PHARMACY DHCP DEVELOPMENT WILL BE CRITICAL AS WE GO FORWARD WITH ENHANCEMENTS ON BOTH FRONTS--CLINICAL AND ADMINISTRATIVE. THE VA CAN BE A LEADER IN THIS AREA FOR THE PRIVATE SECTOR--PARTICULARLY IF WE HAVE THE TOOLS WITH WHICH TO WORK. WE CAN PROVIDE PHARMACY SERVICE AND PATIENT CARE BEYOND THE NORMAL STANDARD. OUR DEVELOPMENT PROGRAM IS USER-RESPONSIVE AND OUR PROGRAMMERS DO EXCELLENT WORK. WE HAVE THE BEGINNINGS OF A SYSTEM THAT CAN BE SECOND TO NONE. WE WILL BE ABLE TO SHOW THE DEMONSTRATED ABILITY THE JCAH WILL REQUIRE AND WE WILL BE ABLE TO USE DHCP CAPABILITIES TO MEASURE OUTCOME. THERE ARE PLANS TO TIE IN DRUG COSTS TO SPECIFIC DRG'S AND LENGTHS OF STAY. THERE ARE PLANS--NEAR IMPLEMENTATION NOW--TO AUTOMATE OUR DRUG INVENTORY, PROCUREMENT, AND FUND CONTROL PROCEDURES AT THE SERVICE LEVEL. BUT WE MUST HAVE THE COMPUTER POWER TO DRIVE THESE PROGRAMS AT ACCEPTABLE SPEEDS AND THE PERIPHERAL EQUIPMENT TO GIVE ACCESS TO DATA TO WHOEVER HAS A NEED. IT IS THROUGH THIS USE AND ANALYSIS OF OUR COMPUTER INFORMATION THAT WE WILL BE ABLE TO BUILD ON OUR STRENGTHS AND IDENTIFY AND OVERCOME OUR WEAKNESSES.

CONGRESS HAS GIVEN US A GOOD START ON OUR DHCP INITIATIVES AND FOR THIS WE ARE GRATEFUL. THE MECHANISMS ARE IN PLACE TO CONTINUE DEVELOPMENT AND EXPANSION. HOWEVER, WE BADLY NEED THE ADDITIONAL TERMINALS, THE NEW TECHNOLOGY, AND THE MORE POWERFUL COMPUTERS TO CARRY US FORWARD.

Office of the
Administrator
of Veterans Affairs

Washington DC 20420

Veterans
Administration

MAY 5 1988

Honorable G. V. (Sonny) Montgomery
Chairman, Committee on Veterans'
Affairs
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Enclosed please find the Agency's responses to the questions which you submitted for the March 30, 1988, hearing by the Subcommittee on Hospitals and Health Care. Thank you for the opportunity to provide this additional information for the record.

Sincerely,

THOMAS K. TURNAGE
Administrator

Enclosure

"America is #1—Thanks to our Veterans"

WRITTEN COMMITTEE QUESTIONS AND THEIR RESPONSE

CHAIRMAN MONTGOMERY

Question: 1. What controls have been implemented to protect system data, equipment, and facilities?

Answer: A new security circular has been developed which mandates planning for emergency situations or conditions and includes detailed procedures and tools to aid in accomplishing this. Formal approval is pending revision to incorporate additional points raised by the Office of the General Counsel; however, the circular has been distributed to the field for guidance in the interim. Implementation will substantially improve internal controls and place Decentralized Hospital Care Program (DHCP) in compliance with appropriate directives. We are in the process of preparing further directives to the field that will take into consideration the provisions of the Computer Security Act of 1987 contained in Public Law 100-235.

Question: 2. Part of the planning process is the examination and evaluation of technological options. How will the VA track and take advantage of the rapid changes and innovations in medical information technology taking place in the commercial sector?

Answer: The most pervasive and perhaps most effective method for tracking technology takes place at the grass roots level through education, institutional affiliations and individual professional associations outside the VA. This exposure continues to raise the level of expectation among clinicians concerning the potential of medical automation. As part of the process of developing Decentralized Hospital Computer Program (DHCP) software, special interest user groups (SIUG) members provide input to developers concerning application of ADP technology within their specialty areas, inside and outside of the VA. Computers for example, are often a key component of new diagnostic and therapeutic procedures.

We are making a major resource commitment to test alternative strategies for hospital automation. Two additional sites will be added to the three existing Integrated Hospital System (IHS) sites to meet the Congressional mandate to establish a permanent test for tracking changes in the technology offered by commercial vendors. As part of RFP development for IHS, we will assemble the VA's functional requirements for hospital automation according to our current perception of our needs relative to the state of the art in hospital information systems. In recognition that both our needs and the technology will evolve, the contracting vehicle will have the flexibility to add new technology and features. We will also be testing how readily available new commercial hardware or software technology can be blended with the existing DHCP base.

Question: 3. The budget initiative for Procurement and Supply's Integrated Supply Management System (ISMS) includes $10 million in medical care for local ADP hardware. How does this fit with VA plans for the Decentralized Hospital Computer Program (DHCP) Core Plus 8, and what benefits will hospitals derive from ISMS?

Answer: The VA is planning a major redesign of the computer systems that support its massive procurement and supply program. The existing system, LOG 1, is a centralized inventory management system developed in the 1960's with punched card technology that is now obsolete. The new system will take advantage of the changes in ADP and telecommunications technology that have happened in the interim, as well as the progress the VA has made using DHCP to automate its hospitals. ISMS will greatly expand on the services offered at the operating level (to Supply services, warehouses and depots, the VA's marketing center and the various elements within each hospital who order and use supplies) and to the central managers of the VA's supply system.

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Answer: 3. (Cont.)

Unlike the original system, developed when centralized processing was virtually the only option, ISMS will distribute processing capacity, data and functions to field stations. The cornerstone for the local processing component already exists with Integrated Funds Control, Accounting and Procurement (IFCAP), a DHCP software package recently released to provide comprehensive procurement and accounting functions to hospitals. Linkage to ISMS will require programming enhancements to IFCAP and computing capacity beyond that previously planned and budgeted to support the original IFCAP procurement functions. The IFCAP enhancements will provide a variety of features for local supply management including inventory management for the warehouse and user services (such as Laboratory and Pharmacy), contracting and direct linkage to central systems for financial management.

When linked to the centralized national item file, the system will provide management information on VA buying practices, vendor prices, etc. that will enable VAMCs individually and collectively to "buy smarter". For example, purchasing agents will have an accurate and consistent source of information on vendor prices and discounts. Central system managers would have enhanced capabilities for program oversight and monitoring.

Question: 4. OTA and others have commended the VA for its use of special interest user groups (SIUGs) to involve end users directly in the software development process. Do you see any change in the role of the SIUGs as DHCP matures?

Answer: Involvement of users has truly been the key element of DHCP's success to date. The SIUGs were formed to articulate the needs of various specialty areas in the hospital (e.g. Laboratory, MAS) and to provide continuous feedback for development of software for that specialty area. This feedback loop had been notably absent from earlier development attempts in the VA, in which ADP professionals outside of the VAMC had worked independently of hospital staff, relying on inaccurate or outdated requirements. SIUG members have been highly motivated and committed to ensuring that the software meets the needs of their peers throughout the VA system. This philosophy of teamwork and accountability, with end users and programmers participating jointly in the development effort, is responsible for the high degree of acceptance the software has received to date.

With the maturity of DHCP has come the realization that there needs to be greater coordination across SIUGs to synchronize development, avoid redundancy and duplication of effort and better focus the limited amount of resources available on common solutions. SIUG membership is also being broadened to include representation from medical centers that have the commercial Integrated Hospital Systems. New strategies for user involvement are emerging that will deal with integration issues and ensure the broadest possible exposure to technological opportunities as well as alternatives offered by the private sector. The Clinician Record Task Group soon to be rechartered as a SIUG typifies this strategy, wherein representatives from the broad range of clinical specialties have focused on the data needed at the point of interface with the patient to provide good clinical care. By its emphasis on data, generic capabilities for accessing it and the long term objective of automating the medical record, this group is in a position to address issues that impact more than one specialty area and require coordination across packages.

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Question: 5. Has the Department of Medicine and Surgery determined the impact of the Computer Security Act of 1987?

Answer: The Computer Security Act of 1987 mandated dates for specific activities. The dates and activities impacting DM&S are:

July 1988 - systems containing sensitive information shall be identified.

September 1988 - mandatory periodic training shall be started for all those involved in the management, use or operation of DM&S computer systems. The training must comply with OPM and NBS guidance which CSA 1987 mandates be developed by July 1988.

January 1989 - plan shall be established for the security and privacy of each system containing sensitive information. DM&S has already begun efforts in this area to comply.

The impact of the mandated training which is to commence September 1988 is not known at this time. More specific information concerning the requirements that OPM and NBS will impose is needed. A generic guide for training may be issued or specific periodic courses may be required, e.g. OPM course to be given regionally which will require travel by DM&S employees. DM&S has already initiated an ADP security training program that is tailored to the VA's health care provider audience.

The definition of the security plans mandated by January 1989 must be determined before the impact and action to comply with this CSA requirement can begin.

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